MATHEMATICS MAGAZINE

50 YEAR INDEX

1926 - 1977

MATHEMATICS MAGAZINE

50 YEAR INDEX

with a brief history
of Mathematics Magazine
by Edwin F. Beckenbach

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The Mathematical Association of America

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PREFACE

Mathematics Magazine began more than fifty years ago as a promotional Newsletter for mathematics teachers in Louisiana and Mississippi. It has metamorphosed several times since then, changing names (from *Mathematics News Letter* to *National Mathematics Magazine* to the current *Mathematics Magazine*) and publishers (from its founder Samuel T. Sanders, to Glenn James, to the Mathematical Association of America), until now it has over 8,000 subscribers in more than 75 countries. Edwin F. Beckenbach, presently chairman of the M.A.A. Committee on Publications, chronicles this history in the introduction to this *50 Year Index of Mathematics Magazine*.

The *Index* itself is divided into two parts: a Title Index (pp 1-118), and an Author Index (pp 119-165). The Title Index consists of titles folded at key words to provide access by subject. Since the topics of some articles are obscured by the titles, we occasionally added key words [in square brackets] to improve the usefulness of the folded word Title Index. Each entry in the Title Index contains complete bibliographic information, so the reader need not search all over the volume to find full information on a particular topic.

Common beginning words, namely *A, An, The, On, Note, Some,* are omitted for the purposes of alphabetization in the Title Index. Thus an article whose actual title is *Some Properties of Determinants* will be found in this index under *Properties* (since this is the first major word in the title) and under *Determinants* (since this is a subject-related key word in the title). Common two-word phrases (e.g., *linear algebra, analytic geometry*) are alphabetized under the first word only. In choosing between specific and general words for keywords, we always chose specific ones. Hence there are few entries under common words such as *equation, number, theorem,* but many entries under *differential equation, irrational number,* and *Fermat's theorem.*

The final section is the *Author Index* in which each article appears with complete information under the first named author, with "see also" references to other authors.

We would like to thank Mary Kay Peterson for her prodigious and diligent work in preparing and typing this text. It is she, more than anyone else, who made this index possible.

February 1, 1979

J. Arthur Seebach
Lynn Arthur Steen

Editors

MATHEMATICS MAGAZINE: THE FIRST HALF CENTURY

A brief history of the *Mathematics Magazine*, from its founding to the present.

Edwin F. Beckenbach
University of California, Los Angeles

The journal now called the *Mathematics Magazine* had no formal title during its first year of existence. Since that time, it has appeared under three different titles. Its history likewise can conveniently be considered as being divided into three epochs, as indicated in the following brief account.

S.T. Sanders and the founding of the journal

The first volume of the journal that was eventually to become the *Mathematics Magazine* amounted to nothing more than a series of campaign folders to encourage membership in the Louisiana-Mississippi Section of the Mathematical Association of America. Bearing no date or numerical designation, the first issue was circulated in October, 1926, among high-school and college mathematics teachers of Louisiana and Mississippi. The eight-page pamphlet was headed:

OBJECT OF CAMPAIGN

Its avowed purpose was "to bring high-school and college mathematics teachers of Louisiana and Mississippi into closer professional contact through the medium of a common membership in the Mathematical Association of America."

The pamphlet listed as endorsers of the campaign the presidents of eight institutions of higher learning in Louisiana and Mississippi, the school superintendents of the two states, and MAA President Dunham Jackson, Secretary-Treasurer W.D. Cairns, and Past President H.E. Slaught. It also listed the names of the officers of the Association's recently formed (1924) Louisiana-Mississippi Section: Chairman S.T. Sanders, Vice Chairman J.A. Torrey, and Secretary-Treasurer B.E. Mitchell.

Accompanied by a mimeographed copy of a letter from MAA President Dunham Jackson expressing the interest of the organization's Board of Trustees (predecessor of the present Board of Governors) in the campaign effort, the pamphlet quoted from several enthusiastic letters of encouragement from mathematicians across the nation regarding the campaign. It then listed these needs for the success of the campaign:

1. Cash contributions from all possible sources to aid printing and mailing expenses of campaign.
2. Every college and university of Louisiana and Mississippi to pay the expenses of at least one delegate to the fourth annual meeting of the Louisiana-Mississippi Section of the Mathematical Association of America, to be held in Shreveport the latter part of March.
3. Every parish school board of Louisiana and every county school board of Mississippi to pay the expenses of one delegate, a mathematics teacher, to the Shreveport meeting.

The pamphlet called attention to the serious responsibility which confronts college and high-school mathematics teachers in handling mathematics courses in such a way as to yield maximum benefit for the undergraduate, and it stated that "one could not properly estimate the teaching effectiveness and inspiration that would result from the annual coming together of even one-tenth of the college and secondary mathematics teachers of the two states at the annual MAA Section meetings, if that tenth should consist of the leading teachers." It was noted that Centenary College had already contributed $125 for campaign expenses, and that one Louisiana parish already was expected to pay the expenses of its delegate. An extensive quotation was then given from an interesting article by Professor H.E. Slaught on "Mathematics and the Public" in the *First Yearbook* of the National Council of Teachers of Mathematics, and

the first pamphlet concluded with the statement that all communications should be addressed to Chairman S.T. Sanders in Baton Rouge.

Chairman Sanders was in fact the guiding force in the membership campaign, and the founder of the journal. A native of Washington County, Florida, Samuel Thomas Sanders was born on January 17, 1872, the son of George Whitfield Sanders and Lucinda Susan Willeford Sanders. He received the Bachelor of Arts degree at Southern University (Birmingham-Southern College) in 1891. After graduation, he taught school in the Alabama towns of Hope Hall and Snowdoun; and for two or three years, until 1898, he served as a part-time Methodist clergyman in Hope Hall and Elba. Then, anxious to contribute to the wartime service of his country, he enlisted in the Second Georgia Regiment, U.S. Volunteers, Spanish American War.

On December 1, 1898, he opened University High School, Baton Rouge, and four years later he became head of the subfreshman department of Louisiana State University. In 1907 he joined the University mathematics faculty, and in 1917 he succeeded Professor James W. Nicholson as Chairman of the Mathematics Department. Colleagues who worked with him have written that "he had a depth of character and breadth of wisdom rare among college professors," "he was a fine friend and a good administrator," and "he strengthened the faculty and developed the graduate department at LSU until it offered a strong and respected Ph.D. program" [1].

Professor Sanders was one of the individuals principally instrumental in the organization in the Deep South of regional components of the Mathematical Association of America and of the National Council of Teachers of Mathematics. In 1923 he was selected by the Association to represent Louisiana on a committee to act in a nationwide campaign for new members. Through his efforts, a group of college mathematics teachers from Louisiana and Mississippi met in Baton Rouge in February, 1924, and plans were formulated for a program meeting and election of officers the following month. The group's petition for affiliation with the Association was approved within four months, and thus the Louisiana-Mississippi Section of the Mathematical Association of America was chartered. As will presently appear, the organization of the Louisiana-Mississippi Branch of the National Council of Teachers of Mathematics was an important by-product of his membership campaign for the Association.

The second campaign pamphlet, again undated, appeared in November, 1926. A four-page folder, it was denoted "News Letter No. 2" and bore the heading:

MEMBERSHIP CAMPAIGN

OF

LOUISIANA-MISSISSIPPI SECTION OF M.A. OF A.

The object of the campaign was repeated; new endorsements by college presidents, deans, and department chairmen, and by local superintendents, were listed; additional letters of encouragement were quoted; and it was stated that Tulane University was willing to contribute $50 to the campaign and that the MAA Board of Trustees had voted to send an expenses-paid delegate to the Shreveport meeting.

The third pamphlet, without date or numerical designation, appeared in December, 1926, with the same heading as the second. It was a four-page folder, with an accompanying mimeographed copy of a letter from Professor H.E. Slaught.

In his letter, Professor Slaught first described the purposes of the National Council of Teachers of Mathematics and of the Mathematical Association of America. He stated that the Annual Meeting of NCTM was scheduled to be held in Dallas on February 28, 1927, that several of its prominent officers and members had agreed to stay over and help organize a Louisiana-Mississippi Branch of NCTM if the Shreveport meeting of the Association could be held on March 4 and 5 and if there were a reasonable assurance of a large and representative attendance, and that he himself planned to be at the Shreveport meeting. He added that "a joint meeting of the two organizations would inaugurate a professional consciousness and *esprit de corps* not hitherto dreamed of."

The third pamphlet itself, in accordance with the suggestions in the Slaught letter, announced that the 1927 annual meeting of the Section would be held at Centenary College in Shreveport on Friday and Saturday, March 4 and 5, rather than later in the

month as originally planned, so that President Marie Gugle of the National Council of Teachers of Mathematics, and other officers and prominent members of the Council, could attend.

In all, eight pamphlets appeared during the first year. The last five of these, designated *News Letter* No. x, for x = 4, 5, 6, 7, and 8, appeared in January, February-March, April, May-June, and September, 1927, though only the last two bore month designations and only the last one indicated the year. *News Letters* No. 4 and 5 had the respective titles

ANNUAL MEETING

and

THIRD ANNUAL MEETING

of the Louisiana-Mississippi Section of the Mathematical Association of America, March 4-5, 1927, at Centenary College, Shreveport, Louisiana. Nos. 6, 7, and 8 simply bore the name of the Section as title.

The 1927 Shreveport meeting ordinarily is referred to as the Fourth Annual Meeting of the Louisiana-Mississippi Section. The use of the word "Third" in the title of *News Letter* No. 5 can nevertheless be claimed technically to be correct: the Louisiana-Mississippi *group* had its first annual meeting in March, 1924, but the *Section* was officially chartered only some three or four months later.

New officers of the MAA Section were elected at the Shreveport meeting. Their names were listed after the title in the sixth pamphlet, and were repeated in the seventh and eighth: S.T. Sanders, Chairman (re-elected); P.K. Smith, Secretary-Treasurer; Hal Fox, Vice-Chairman; and J.A. Hardin, Vice-Chairman.

The significance of the pamphlet campaign does not lie in any success it might have had as an Association membership drive. Actually, although the Shreveport Chamber of Commerce generously provided a fine banquet for all delegates, only about 100 persons attended the well-publicized Annual Meeting of the Section, as contrasted with twice that number at the Section meeting of two years earlier, in 1925.

Nor does its significance lie in the amount of funds raised in support of the publication program, for besides the two institutional contributions already noted there were just four additional institutional contributions, one for $25 and the other three for $15 each, plus four individual contributions of $5 each--a total of only $265 in all and an ill omen of future financial troubles.

The campaign must nevertheless be regarded as being notably significant on three important counts:

First, the campaign resulted in the formation, during the Shreveport meeting, of the Louisiana-Mississippi Branch of the National Council of Teachers of Mathematics, the third branch to be affiliated with that organization. The Louisiana Academy of Science also was organized at this meeting.

Secondly, the MAA Section and the NCTM Branch voted to hold joint Annual Meetings, a practice that continues to this day and a model of cooperation between organizations. (It is a pleasure to note that the same fraternal spirit holds between the MAA and NCTM parent organizations, where cooperation is particularly strong at the present time.)

Thirdly, lunching together immediately after the Shreveport meeting, Professors Slaught, Sanders, and P.K. Smith decided that publication of the pamphlet should be continued. Years later, Professor Sanders wrote [2]: "The idea of perpetuating what was begun as a mere leaflet was an after-thought, but the conception came within an hour after the historic beginning" of the Louisiana-Mississippi Branch of NCTM.

As much as to Professor Sanders, the foregoing achievements must be credited to Professor Slaught, whose organizational genius and farsighted imagination had already made him largely responsible for the founding of the Mathematical Association of America, and also instrumental in the founding of the National Council of Teachers of Mathematics and of the Chicago Section of the American Mathematical Society, among other organizations.

But the actual continuation of the new journal would not have occurred but for the hard work, perseverance, and financial sacrifice of Professor Sanders. In the eighth pamphlet, dated September, 1927, it was stated editorially that "the recent joint action of the MAA Section and the NCTM Branch in voting to have their annual meetings at the same time and in the same place, the programs to be joint to the extent that both secondary and college elements would be featured, justified the use of the *News Letter* in promoting the interests of both organizations." Because of the formally voted cooperation, this eighth issue of the *News Letter* listed, along with the names of the officers of the MAA Section, also the names of the officers of the NCTM Branch: W.C. Roaten, Chairman; Ida K. Smith, Vice-Chairman; and Birdie I. Longmire, Secretary-Treasurer. In an appeal to college and university presidents for funds to continue the publication, the hope was expressed in this issue that in time the letter might be expanded into a little magazine.

Then just one month later, with a formal masthead dated October, 1927, Vol. 2, No. 1 of the new journal appeared, bearing its first real title:

MATHEMATICS NEWS LETTER

Immediately below this was the caption:

> Published in the interest of the Louisiana-Mississippi Section of the Mathematical Association of America and the Louisiana-Mississippi Branch of the National Council of Teachers of Mathematics.

Further, it gave the following statement of purposes to be served by the journal:

1. To supply a bond of connection among the teachers and students of mathematics in Louisiana and Mississippi.
2. To inspire those college and high-school mathematics teachers who may be out of touch with the larger currents of mathematical development and of mathematics teaching to get in touch with them.
3. To serve as a means of reinforcing and making effective in our own home territory all the expansion programs of the Mathematical Association of America and the National Council of Teachers of Mathematics.
4. To promote a steady growth in the membership of these organizations by endorsing or initiating plans to increase the number of readers of the *Mathematics Teacher* among the secondary teachers and the number of readers of the *American Mathematical Monthly* among college teachers of the two states.
5. To constitute a news medium through which the programs and projects of every college or school mathematics department of the Louisiana-Mississippi territory can be made known to every other mathematics department in the territory.
6. To promote the success of the annual joint meetings of the Louisiana-Mississippi Section of the Mathematical Association of America, and the Louisiana-Mississippi Branch of the National Council of Teachers of Mathematics.
7. To support everything and everybody that supports mathematics.

It named no editors; instead, it listed the names of the officers of the Louisiana-Mississippi Section of MAA and of the Louisiana-Mississippi Branch of NCTM. It also announced a regular subscription price of 50¢ per year and stated the aim of the officials of both organizations to produce and distribute ten issues per year to the college and secondary mathematics teachers of Louisiana and Mississippi.

The foregoing items are given in detail because alterations in them during the first few volumes reveal developments that might not otherwise be apparent on a casual reading of the *News Letter*, and also indicate changes in Professor Sanders' own thinking regarding the mission of the journal. In an historical account, a derivative df/dt can often be as interesting and significant as a function $f(t)$ itself. For example, the fact that in Vol. 3, No. 4, December, 1928, the masthead caption read

"...under the auspices of..." shows an *intensity* of involvement; but the fact that this was a *change* from the original (see caption quoted above) "...in the interest of..." indicates an *intensification* of involvement.

Actually, there were only six issues in Volume 2, and at the Joint Annual Meeting of the Section and Branch in March, 1928, it was resolved that there should henceforth be eight issues per year, at a subscription price of $1.00. Thereafter, until Volume 20, there were in fact eight issues in each volume, except for the following combined issues: Vol. 5, Nos. 7 and 8; Vol. 6, Nos. 5 and 6 and Nos. 7 and 8; and Vol. 7, Nos. 7 and 8. The dates of the issues varied slightly for a while; but starting with Volume 8 the issues of each volume appeared monthly, October through May.

It was further resolved at the 1928 Joint Annual Meeting that a high-school mathematics teacher should assist a college mathematics teacher in the task of editing and managing the journal. Accordingly, Professor Sanders and Mr. Henry Schroeder, of the Ruston, Louisiana, High School, were named as editors. Starting with Vol. 2, No. 6, April, 1928, the editors were listed in the masthead, just before the officers of the two organizations.

In a bid for support in other states in the Union, while maintaining its primary devotion to the cause of mathematics and its teaching in the Louisiana-Mississippi area, the foregoing statement of purposes was broadened by abbreviation and inserted in the masthead of Vol. 3, No. 4, December, 1928, as follows:

> To mathematics in general, to the following causes in particular, is this journal dedicated:
>
> 1. The common problems of high-school and college teaching.
> 2. The disciplines of mathematics.
> 3. The promotion of MAA and NCTM projects.

Later, at the March, 1929, Joint Annual Meeting, the office of Business Manager of the *Mathematics News Letter* was created, to be filled by J.A. Hardin as Chairman of the Section; Professor Sanders was made Editor-in-Chief; and Miss Dora M. Forno, of the New Orleans Normal School, was added to the editorial staff to represent grade-school mathematics and its teaching. These changes were reflected in the masthead of Vol. 3, No. 8, April, 1929, and the first cause in the list of purposes was broadened to include the interests of all NCTM members:

> 1. The common problems of grade, high-school, and college mathematical teaching.

In fact, the journal contained much valuable and interesting material for its diverse classes of mathematical readers: news items; problems; book reviews; and articles by Professor Saunders and his colleagues, by teachers at all levels in Louisiana and Mississippi, and by leading mathematicians in other parts of the country.

The *News Letter* received a gratifying amount of national attention, and there were encouraging letters of support from individuals and from officers of the two organizations, at both the local and the national level. For example, in a letter dated March 3, 1929, NCTM President Harry C. Barber wrote to Mr. Henry Schroeder of the *News Letter* Editorial Staff, as follows:

> My dear Mr.Schroeder:
>
> This is to bring you greetings from the National Council and to let you know that the Louisiana-Mississippi Branch was mentioned several times at our annual meeting in Cleveland.
>
> You were referred to as a vigorous, active branch of which the Council is very proud. The *News Letter* was commended as a particularly fine piece of work and held up as a model for others.
>
> Your members may be glad to hear of this appreciation on the part of the parent organization.
>
> Please find enclosed $1.00 for my subscription to the *News Letter*. I hope you will feel free to call on us at any time when we can

help you.

Cordially,
Harry C. Barber, President

Nevertheless, in spite of Professor Sanders' evangelistic exhortations that continued to appear on the pages of the journal, subscriptions languished far below his impossibly unrealistic goal of 100% of the mathematics teachers of Louisiana and Mississippi, and financially the publication was characteristically in crisis. Professor Sanders covered the financial deficit for Volume 2, 1927-28, but he was partially reimbursed for this during the ensuing year by pledge redemptions forwarded to him through the Secretary-Treasurer of the Section.

For Volume 3, 1928-29, there were three institutional contributions of $18 each, and a total of $33 in individual contributions. Subscriptions brought in $164. (There were only 169 paid-up subscribers, about 10% of the college and high-school teachers in Louisiana and Mississippi.) The deficit of $466.07 was paid by "personal contributions," that is, by Professor Sanders himself. Later, MAA Secretary-Treasurer W.C. Cairns sent Editor Sanders a check for $50 toward the "expenses of the La.-Miss. Section for 1928-29." An accompanying informal note from Professor Slaught of the Finance Committee suggested its application to *News Letter* expenses. The generous MAA gesture was repeated for 1929-30.

The reader of legalistic bent might wonder if there might have been individuals, perhaps MAA and NCTM officials, local or national or both, who looked askance at some of the official actions that had been taken regarding the journal at the Joint Annual Meetings of the MAA Section and the NCTM Branch--individuals who, though pleased with the *News Letter* and its services, were nevertheless uneasy about its financial and official status. Perhaps there were. Certainly, the Section and Branch were in no position to underwrite a journal that continued to show large financial deficits.

In any case, with Vol. 4, No. 5, January, 1930, the masthead entries:

S.T. Sanders, Editor-in-Chief
J.A. Hardin, Chairman and Business Manager

were abruptly changed to:

S.T. Sanders, Editor and Manager
J.A. Hardin, Chairman

Here "Chairman" referred, of course, to the Chairmanship of the MAA Section. Then in Vol. 5, No. 3, November, 1930, the names of all MAA Section and NCTM Branch officers except their respective Chairmen were withheld from the masthead.

Apparently, however, the progressing disentanglement was intended only as a technical and legalistic one, for in Vol. 6, No. 1, September, 1931, the Chairmen of the MAA Section and NCTM Branch released a carefully worded joint appeal, warmly and highly, though detachedly, praising the publication and transmitting the pledge of their parent organizations, through their officers, to assist in financing a campaign to secure a much larger number of subscribers for the journal throughout the country.

The move toward disentanglement seemingly was mildly rebutted, for in the very next article in this issue there appeared the innocent-looking sentence: "It is well known that the *Letter* is the official organ of the Sections of the Association and Council." The article was signed with the initials C.D.S. [for Professor C.D. Smith, a member of the Editorial Staff, from Mississippi A and M College].

This unfortunate sentence must have boomeranged, for action in the opposite direction became more intense, hastening the ultimate denouement. In Vol. 6, No. 3, November-December, 1931, the participial phrase in the masthead caption was changed again, this time from "under the auspices of" to "with the cooperation of," so that the caption now read in full:

> Published with the cooperation of the Louisiana-Mississippi Section of the Mathematical Association of America and the Louisiana-Mississippi Branch of the National Council of Teachers of Mathematics.

This change, however, appears to have been deemed to be less than adequate, for starting with the very next issue, Vol. 6, No. 4, January, 1932, the caption was changed radically to read only:

> Published eight times per year at Baton Rouge, Louisiana.

At the same time, the names of even the Chairmen of the Section and Branch were removed from the masthead; and the statement of purposes of the journal also was changed to eliminate all mention of MAA and NCTM, as follows:

> Dedicated to mathematics in general and to the following aims in particular:
>
> 1. A study of the common problems of secondary and collegiate mathematics teaching.
> 2. A true valuation of the disciplines of mathematics.
> 3. The publication of high-class expository papers in mathematics.
> 4. The development of greater public interest in mathematics by the publication of authoritative papers treating its cultural, humanistic, and historical phases.

The alterations had proceeded with so little fanfare (Who reads mastheads?) that the average reader presumably was totally unaware of the underlying drama implicit in the changing masthead. Thereafter, Professor Sanders never again referred in the masthead to MAA or its Section, or to NCTM or its Branch; nor did he elsewhere claim any official connection between those organizations and the journal. On occasion, in fact, he was sometimes careful to deny the existence of any such connection.

The *News Letter* nevertheless continued wholeheartedly to devote as much space and attention as before to news and items of interest to both the MAA Section and the NCTM Branch. For example, in Vol. 8, No. 5, February, 1934, it was expansively announced that, at the suggestion of Professor W.D. Cairns, MAA President Arnold Dresden would address the 1934 Joint Annual Meeting in Jackson, Mississippi, on March 23 and 24, and all members were strongly urged to attend.

At the start of Volume 9, 1934-35, with the statement that "the old name, we believe, served its purpose well, but with the journal's expansion it was inevitable that an enlarged group should regard *News Letter* as inaccurately descriptive," Professor Sanders changed the name of the journal to:

NATIONAL MATHEMATICS MAGAZINE

The statement of purposes of the journal also was adjusted somewhat upward at the same time:

> This journal is dedicated to the following aims:
>
> 1. Through published standard papers on the cultural aspects, humanism, and history of mathematics to deepen and to widen public interest in its values.
> 2. To supply an additional medium for the publication of expository mathematical articles.
> 3. To promote more scientific methods of teaching mathematics.
> 4. To publish and to distribute to the groups most interested high-class papers of research quality representing all mathematical fields.

Also at the start of Volume 9, to the existing "Book Review Department" and "Problem Department" were added a "Teacher's Department" and a "Notes and News Department." Later, in Volume 11, a department entitled "Humanism and History of Mathematics" was added. All these departments, as well as the foregoing statement of purposes, persisted virtually unchanged through Volume 20.

Professor Sanders himself continued to bear the brunt of the steadily mounting monetary deficit of the journal. Financial relief came at last in 1935, along with an enhanced stature for the publication, as Professor Sanders reported:

> With this issue, No. 1, Vol. 10, of the *National Mathematics Magazine*, the private status of the journal ceases and it officially becomes the protege of the Louisiana State University. The terms and conditions of this new sponsorship as tendered by President James Monroe Smith were marked by a sympathetic consideration for the years of financial sacrifice endured by the editor and founder of this journal, and furnished unquestionable evidence of this desire that a great and growing institution of which he is the head should have a part in promoting the cause of mathematics and its teaching.
>
> We call upon the host of friends and supporters of the *Magazine* to rejoice in this realization of so powerful an aid to our project--an aid dreamed of and hoped for through many years.
>
> The national scope and outlook of the *Magazine* will not be subtracted from in the slightest measure by this change of its status. On the contrary the spirit of the Louisiana State University, as this is reflected in its President's conception, is that the adoption of the magazine by the University should vastly strengthen and make effective the program of purposes and ideals as these are expressed on the title page.

Professor Sanders naturally retained his position as Editor and Manager.

In Vol. 10, No. 2, November, 1935, under the title "In Appreciation," appeared this personal tribute to his Circulation Manager:

> With the passing of the private status of this journal, goes the Editor's profound appreciation of the fine service rendered our cause by Inez (Mrs. E.J.) Land, who for the past several years has acted as Circulation Manager for the *Magazine* while holding the busy office of secretary of a progressive printing company, the Franklin Press.
>
> Her contribution to the administration of this journal has not been the less valuable, or worthy of our gratitude, because of her extraordinary energy and capacity for work--even work over-time and on the side.
>
> Her generous assistance cannot be forgotten.

For Vol. 10, No. 8, May, 1936, fatefully at just about the midpoint of his tenure as Editor of the *Magazine*, Professor Sanders prepared an editorial [2] entitled "Retrospect and Prospect." In it, he first recalled the founding of the Louisiana-Mississippi MAA Section and NCTM Branch, and with them the founding of the journal. He referred to "our years of financial sacrifice": "The story of the struggle to keep the mathematical home-fires burning by preserving the life of the little Journal can have no place on this page. Possibly such a story will never be written." In compensation were the same "years in which from every quarter of this country were revealed friends, sympathizers, and helpers of the cause, those without whom our courage would have failed utterly." Noting that "the history of mathematics in America has shown that the 10th year is the fateful year of the privately promoted mathematical journal, that 9 or 10 years has been the maximum life period among those not surviving," he wrote glowingly of the adoption of the *Magazine* by "our own institution, Louisiana State University." Regarding the future, he concluded by stating: "We have not space here to consider the *Magazine*'s prospects. Those interested may prophesy."

Professor Sanders' production now was truly in its heyday. The total number of pages jumped from 192 in Volume 8, 1932-33 (the first volume in which pages were numbered by volume rather than by issue), to 260 in Volume 9, to 328 in Volume 10, and then to over 400 in each of the next six volumes, with a maximum of over 500 in Volume 14, 1939-40.

There were excellent articles, especially expository papers and papers on the history of mathematics, and interesting material in all the journal's departments. Professor Sanders even indulged in the insertion of glossy photographic pages. With Volume 14, 1939-40, the subscription price was quite justifiably increased to $2 per yearly volume.

Crash! It had all been too good to be true. In 1941, in a purely political ploy, Louisiana Governor Huey P. Long viciously attacked the financial structure of the University. Drastic budgetary cuts would be unavoidable. Coincidentally and unfortunately, the close of the current 1941-42 academic year was also the date of Professor Sanders' mandatory retirement from LSU. The minutes of the meeting of the MAA Board of Governors in Bethlehem, Pennsylvania, on December 31, 1941, contain the following item:

> At the invitation of the Board, Professor S.T. Sanders reported that, due to policy of economy instituted by the Governor of Louisiana, the Administration of Louisiana State University has recommended to the State Board of Supervisors a reduction in the subsidy of the *National Mathematics Magazine* from approximately $2,700 to $600. As the result of the discussion, the President and Secretary were requested and instructed to send letters to President C.B. Hodges and to J.E. Smitherman, Chairman of the State Board of Supervisors, expressing our appreciation of the importance of the *Magazine* and of the contribution which the University has thereby made in recent years to the cause of mathematics, and of general education, in the South and in the whole country, our great regret at the loss of influence that a discontinuance of the *Magazine* would entail, and our hope that the proposed reduction in the subsidy will be annulled.

The letters were written by MAA Secretary W.D. Cairns and President R.W. Brink, as were letters by NCTM President Mary Potter, AMS Secretary J.R. Kline, and others.

In Vol. 16, No. 4, January, 1942, Professor Sanders called the attention of his readers to the adverse budgetary recommendation and to the many letters that had been written on behalf of the journal. "A recent recommendation by the Louisiana State University Budget Committee that the budget of *National Mathematics Magazine* for 1942-43 be materially cut served as a signal for prompt and earnest letters directed to President Hodges of this University--letters pleading for the continuation of an undiminished *Magazine* budget, pleading for a continuation of the same amount of service to the cause of mathematics that LSU has so generously provided in the six years of its sponsorship of the *Magazine*." As signers of such letters he listed several well-known and influential mathematicians, including B.F. Finkel, E.J. Moulton, A.J. Kempner, E.R. Hedrick, W.D. Reeve, and R.E. Langer, in addition to the current officers already noted.

In the following February, 1942, issue, he pointed out evidence of support for the journal through a substantial increase in the rate of subscription payments, with accompanying letters of encouragement from H.M. Bacon ("Louisiana State University has rendered a real service to mathematics and education not only in the South but throughout the Nation in supporting the *Magazine*."), C.C. MacDuffee ("It is with great regret that I learn that the *National Mathematics Magazine* is having financial trouble. I know you have put in years of work and devotion to a journal, which is a credit not only to you but to the University and the South."), and others. Professor Sanders concluded with this: "It would seem that in spite of present war conditions and of a more or less publicized prospect of drastic reduction in the *Magazine* budget, the *National Mathematics Magazine* is still moving forward. *National Mathematics Magazine* will continue to go forward under whatever sponsorship it may operate."

The March issue carried the bad news that the reduced budget had indeed been adopted, but added that the terms had been rejected by the *Magazine* in the hope that an adequate sponsorship could be found elsewhere:

> Despite vigorous protests addressed to LSU's governing board and to its President--protests that have come from a great many different sections of the United States and from the present editor and manager of the *Magazine*--it was decided at the recent meeting of the Board of Supervisors that the recommendation regarding the support of the *Magazine*, which had been made by the University Budget Committee in December, should be approved without change.
>
> Under this recommendation LSU would contribute only secretarial and administrative aid to the journal, no money being budgeted for printing. Confident that, if these terms of LSU should be accepted, the safety of the journal would be jeopardized, we have decided not to

> accept them. We think it best to seek sponsorship by another institution even as we acknowledge our profoundest gratitude to Louisiana State University for its seven years of service to the *Magazine*. Put otherwise, the present editor and manager will after July 1 assume a temporary sponsorship of *National Mathematics Magazine*--this sponsorship to be transferred to the institution or institutions that shall be found willing and able to assume the role presently being performed by LSU.
>
> In the meanwhile, it gives me pleasure to announce to the supporters of the *Magazine* that there is in prospect an arrangement which, if it can be effected, will mean that the new sponsorship will be assumed by another Louisiana institution, the writer to be retained as a member of its mathematics staff, and continued as *Magazine* editor.
>
> The April issue will very probably contain our final announcement on the matter.

Unfortunately, the anticipated new arrangement did not develop. Instead of reporting on it, in the April issue Professor Sanders dwelt on a rallying period for the *Magazine* in the interval between sponsorships:

> The interval between two *Magazine* sponsorship periods, one the Louisiana State University sponsorship, officially terminating July 1, this year; the other, the sponsorship of a presently undetermined institution, will be made a rallying period for the *Magazine*.
>
> A campaign of unprecedented proportions is already being undertaken --one which will press the value-claims of this journal upon the attention of thousands of mathematical workers throughout America.
>
> The present war emergency, with its imperative calls on mathematics, should guarantee a nation-wide cooperation with the promoters of this drive, on the part of all who hear our rallying cry and who have the proper vision of the vital role that must be assumed by mathematical science in this crisis.

The next issue, Vol. 16, No. 8, May, 1942, again emphasized the rallying period ("In a few weeks a circular describing all phases of the *National Mathematics Magazine* and its work will be mailed from Baton Rouge to 6,000 mathematics teachers in high schools, junior colleges, colleges, and universities in the United States and Canada.") but did not mention sponsorship. It noted that a letter had been sent out early in May to fifty leaders in American mathematical organizations emphasizing the importance of a cooperative support for the *Magazine* by all whose life work is in the field of mathematics. The letter bore the following statement:

> While *National Mathematics Magazine* has no official relation to existing mathematical bodies, such as the Society, the Association, or the National Council of Teachers of Mathematics, nonetheless it can be said emphatically that it shares with other journals a sense of responsibility for the advancement of mathematical programs on a national scale.

The very first answer came from AMS President Marston Morse and was quoted in full:

> I wholeheartedly approve of your endeavor to keep the *National Mathematics Magazine* going in an effective way. This is very important now, and will be even more important after the war. The appeal should be broadened as far as possible, including the cultural influence of mathematics and its relation to economics and philosophy. Please accept my best wishes for your continued success.

The promised circular to 6,000 presumably never materialized. Indeed, in the fall of 1942, starting with Vol. 17, No. 1, the masthead of the *National Mathematics Magazine* listed Professor Sanders as Publisher, in place of Louisiana State University. Thus the Editor-and-Manager found himself again saddled with financial responsibility

for the journal at the same time as he began his retirement from LSU--a dismal prospect, indeed!

Encourgement came from MAA in the form of a $400 grant for 1942-43. The beautifully understanding letter telling of the grant, dated September 14, 1942, read as follows:

> Dear Professor Sanders:
>
> At the meeting of the Board last week, and on the recommendation of our Executive Committee, it was voted that an appropriation of $400 be made in 1943 toward the expense of printing and distributing the volume of the *National Mathematics Magazine* for 1942-43. This had not come to us as a request from you, but the Board, sensing that this is a special critical year for the journal, felt that we should make this appropriation. I have no doubt that this will be rather pleasing to you and to your associates. As indicated, this is an item in our budget for 1943 and can be paid at whatever time in 1943 you may wish it.
>
> We hope very much, indeed, that, while this gift will, of course, aid materially in the plans for your next volume, the fact that it has been given by the Mathematical Association will inspire others to help in your very fine enterprise.
>
> Yours very truly,
>
> W.D. Cairns
> Secretary-Treasurer.

The payment was made from the Jacob Houck Memorial Fund [5, p. 107] and gratefully acknowledged as such in the *Magazine*. (This furnishes an excellent example of the advantage and wisdom of having available special funds with purposes not too narrowly specified, for application when worthy and appropriate causes arise.)

It is easy to adjust to an improved publication style, but difficult to retrench. Professor Sanders had to abandon the expensive photographic inserts in the journal, but he reduced the number of pages almost none at all. Deficits soon arose, and they mounted alarmingly.

There were heartwarming compensations. For example, in the fall of 1943 Professor Sanders' LSU colleague, Professor Norman E. Rutt, contributed $50 for the *Magazine*. Then on December 21, at the opening of the LSU seasonal holiday period, the Editor-and-Manager "was invited to the coffee room in Nicholson Building of the University and presented with a cash sum of $115.50 to be used in furthering the cause of the *Magazine*. Under the leadership of Dr. Irby C. Nichols, a long-time meber of the LSU Mathematics staff, with the encouragement and approval of W. Vann Parker, head of the Department, cash donations had been gathered from exactly 100% of the membership of the mathematics staff. A remarkable testimonial to their high valuation of *National Mathematics Magazine!*"

In Vol. 18, No. 7, April, 1944, Professor Sanders again appraised the situation, as follows:

> With this the April, 1944, issue of *National Mathematics Magazine* two volumes of it have been nearly completed since, on July 1, 1942, the undersigned and his editorial colleagues assumed responsibility for its continued publication. During this period the undersigned, by allowing his name to be carried on the title page as its official publisher, has become automatically the party responsible for all debts incurred in its administration. This has meant, and could only mean, that, with the aid of our loyal colleagues, we have assumed the initiative in planning ways and means by which the *Magazine* revenues, through subscriptions, advertisements, and donations, could be increased.
>
> We have not the slightest intention of painting on this editorial page a picture of the obstacles, handicaps, and discouragements

that have been encountered during these two years. Even if such a picture were relevant to the purpose of this announcement, the painting of it should more properly be done by someone else.

During the current volume-year no large donation to the cause of the *Magazine* (such as the $400.00 voluntary donation by the Mathematical Association of America in the latter months of 1942) has been made. But a number of smaller donations have been generously tendered by individual friends of the cause--friends whose names compose a Roll of Honor which should be inscribed on the pages of this journal.

A conservative count of our roster of subscribers discloses that there are presently at least 50% more paid-up subscriptions than there were in the spring of 1942--a few months prior to the discontinuation of Louisiana State University sponsorship.

In the same issue appeared this advertisement:

WANTED!

A mathematics teaching position in an institution not too far from Baton Rouge, Louisiana. This is desirable in order that my management of *National Mathematics Magazine* may not be unduly disturbed. Salary terms reasonable.

S.T. Sanders

Emeritus Professor of Mathematics
Louisiana State University

Starting with Volume 19, 1944-45, the subscription rate was increased from $2 to $3 per year. Professor Sanders took heart when, in August, 1944, MAA made an additional grant to the *Magazine* from the Houck Fund, this time in the amount of $200. The greatly appreciated gesture was repeated in February, 1945.

The Editor-and-Manager moved to Mobile, Alabama, at the end of 1944. There he did part-time teaching at the Mobile Center, University of Alabama, and later at the University Military School. He finally retired from teaching in 1957, at the age of eighty-five.

The editorial center of the *Magazine* accordingly was moved from Baton Rouge to Mobile at the end of 1944. The printing, however, continued to be done by the Franklin Press in Baton Rouge.

Professor Sanders' son, Dr. S.T. Sanders, Jr., was himself a mathematician of considerable promise. Professor and Mrs. S.T. Sanders, Jr., contributed some $700 to pay off the debts of the journal. There remained only the considerable obligation to subscribers, many of whom had paid for several years in advance.

The younger Sanders tragically lost his life in an automobile accident on April 10, 1945.

Looking toward Volume 20, the elder Sanders prepared the following editorial for Vol. 19, No. 8, May, 1945:

> Due to the fact that the present Editor-and-Manager has for more than a year been without any office help and has, besides, for many months been busy teaching several hours a day, it has been impossible for him to send notices to the subscribers when their subscriptions have expired. He has, however, from time to time published notices in the *Magazine* requesting subscribers not to wait for formal statements before renewing their subscriptions. In response to these notices practically no requests for cancellation of subscriptions have been received.
>
> In justice to the Editor-and-Manager it should not be forgotten by any one of the hundreds of friends of the *Magazine* that when in 1942

> Louisiana State University discontinued its sponsorship he undertook with the magnificent help of his editorial colleagues to carry on, even placing his name on the title page as publisher. Due to the desperate illness of E.J. Land of the Franklin Press, in Baton Route, La., an illness covering a period of four months or more, there was no one in that splendid printing firm to handle the Monotype machine, which for the past nineteen years has been used to set the *Magazine*. It was because of this situation that the December issue was delayed for nearly three months, and the January issue was not off the press until April.
>
> Accomplishing one of the most remarkable come-backs the writer has ever witnessed, Mr. Land, though working part-time, has to date printed all issues due you in Volume 19 and with a typographical finish which we believe is not excelled.
>
> If you have been getting the *Magazine* over a period not as yet covered by your renewal check, and, if you wish to continue your subscription to it, remittance from you to cover a year, or even more than a year, in addition to past months will be welcomed as both a practical help to the *Magazine*, and, what is equally valuable, an inspiration to the Editor-and-Manager. Many subscribers have paid several years in advance.
>
> Our printer's debt will be a large one this year. Every paid-in dollar that is due the *Magazine* will be definitely needed in discharging the debt.

The MAA Board of Governors, in Business by Mail, dated August 27, 1945, voted approval of a committee to study the question of the possibility of the Association's taking over the publication of the *National Mathematics Magazine*. The members of the committee were MAA President C.C. MacDuffee, Past President W.D. Cairns, and President-To-Be L.R. Ford.

At the meeting of the Board in Chicago on November 24, 1945, the committee reported against taking over the publication. The minutes of the meeting stated that "in the discussion, it was pointed out that it would be difficult to secure and maintain a competent editorial staff for a second periodical, and some doubt was expressed as to the need of a journal at a lower level than the *Monthly*. The Board voted that we should not take over the publication of the *Magazine*, and that we should not continue any subsidy for the *Magazine* after 1945. It was suggested, without formal action, that if the publication of the *Magazine* was discontinued, the Association might help in liquidating the financial and subscription obligations already incurred by the periodical. The Secretary-Treasurer was asked to take up this matter tentatively with Professor Sanders, the Editor of the *Magazine*."

Having neither an institutional sponsor nor the support of the Association, the elder Sanders found the total burden more than he could continue to carry. After Vol. 20, No. 2, November, 1945, publication of the *National Mathematics Magazine* abruptly ceased.

Glenn James to the rescue

I (the author of the present article) joined the mathematics faculty of the University of California, Los Angeles, in the summer of 1945. Because of wartime shortages, construction of buildings had been sharply curtailed, and the campus was bulging with people. I shared an office with Professor Glenn James.

A native of Wabash, Indiana, Glenn James was born on October 2, 1882. He attended school in Jonesboro and Monticello, Indiana, and took some undergraduate courses at Vincennes University. After obtaining the degrees of Bachelor of Arts in 1905 and Master of Arts in 1911 at the University of Indiana, he did graduate work at the University of Chicago and then won his Ph.D. at Columbia University in 1917. He taught mathematics at Michigan State University from 1905 to 1908, at Purdue University from 1908 to 1919, and at the Carnegie Institute of Technology from 1919 to 1922. Coming to UCLA in 1922, he remained there until he retired in 1958.

His major mathematical interests lay in the theory of infinite series and number theory, especially the famous Last Theorem of Fermat, and he published numerous research papers on these subjects [3,4].

A gentle person of quiet determination, Glenn was deeply concerned for the welfare and development of his students, and there was a constant flow of them to our office. His delight was apparent when any of his students would make progress in a problem area he had proposed, and he obviously made a lasting impression on many of them.

Among his students, a particularly frequent and enthusiastic visitor to our office was Jerome Hines, a music major who had become fascinated by Professor James's mathematical work. Jerry (as we called him) was torn between music and mathematics, and for a while he thought of pursuing both careers simultaneously. Music with its strict demands permitted no second full-time love, however, and he went on to become a famous basso with the Metropolitan Opera Company in New York. Though mathematics was relegated to a position of lifelong hobby, Jerry did manage with the encouragement of Professor James to publish several mathematical research papers; on occasion he has given university seminar lectures on this work; and in fact he has just recently completed a long research tract on an idea advanced to him by Professor James over 35 years ago!

Glenn was dismayed, in the early spring of 1946, to learn that Professor Sanders had discontinued publication of the *National Mathematics Magazine*. Glenn had written articles for the *Magazine;* and in it he had placed advertisements for the *Mathematics Dictionary,* which he had coauthored with his son Robert C. James, now Professor of Mathematics at the Claremont Graduate School. Through his correspondence with Professor Sanders, Glenn had thus developed a considerable empathy for Professor Sanders in his struggle to sustain the *Magazine*.

On several occasions, Glenn and I discussed the feasibility of various means for resuming publication of the journal. The possibility of finding an institutional sponsor seemed remote. Professor Sanders had widely sought a university home for the magazine in the South, and we saw no good reason for anticipating that there might be greater success elsewhere. The content of the journal had rather diverged from the directions of greatest interest to NCTM, and the MAA Board of Governors had just recently voted not to take over the responsibility of the publication. Glenn and I both felt that the reasons on which the MAA decision had been based were not necessarily valid; but it was a defensible decision, deliberately reached.

There was, however, another possibility. Glenn had had some experience as a publications entrepreneur, albeit (or relevantly!) on a shoestring: Through his Digest Press, in the 1930's he had successfully edited, published, and distributed a periodical, the *Peace Digest,* and later he had applied the same enterprising methods in independently producing the *Mathematics Dictionary*. He thought that by having most of the production and distribution work on the *Magazine* done by himself and his family in his home, and by applying other economical measures and fund-raising schemes, he could make the journal be financially self-sustaining.

The thought grew to a conviction, and the conviction led to a sense of mission. Glenn wrote to Professor Sanders, explaining his ideas and making concrete proposals to take over the sponsorship and management of the *National Mathematics Magazine*.

Professor Sanders was at first reluctant to allow control of the journal to pass from the Deep South. It was the first permanent mathematics journal to originate there, and the South has a strong tradition in mathematics, just as it has in literature and military science. But he saw nowhere else to turn, and he was impressed by Professor James's obvious sincerity, so he accepted.

Ironically, a short time later the Chairman of the Mathematics Department of the University of Alabama wrote to Professor Sanders expressing the willingness of his university to assume responsibility for the publication. But Professor Sanders stood by his agreement with Professor James, and as time went on he came to feel that "a good and knowing Providence guided my way" in making that agreement [1].

Glenn's eyes were glowing when he told me of Professor Sanders' acceptance. I congratulated him heartily, but added that since the regionally restrictive adjective

National seemed inconsistent with his own personal philosophy (he loved America, but not some aspects of nationalism), and since for years it had not been properly descriptive of the content of the *Magazine*, which had become international in its appeal, I thought he should drop *National* from the title.

The thought had not previously occurred to him, but he immediately responded, "Of course, I will," and that was that.

Glenn asked Professor Donald H. Hyers of the University of Southern California, Professor Aristotle D. Michal of the California Institute of Technology, and me to serve with him on the Executive Committee of the *Mathematics Magazine*. Don Hyers and Aris Michal accepted and were a great help to Glenn, especially in soliciting excellent articles by outstanding authors for publication in the journal. I decided not to accept, partly because (answers to "Why not?" can sometimes be as illuminating as answers to "Why?") I thought it might be preferable to have just one member from each of our three neighboring institutions on the Executive Committee, and I knew that I would be informally discussing problems and policies of the *Magazine* with Glenn in any case; but more because I thought it best for me not formally to take on two active editorial assignments at the same time.

I was already serving, at the invitation of Professor Lester R. Ford, Editor-in-Chief of the *American Mathematical Monthly* from 1942 through 1946, as Editor of the "Discussions and Notes" department of the *Monthly*. (Professor Ford had earlier directed the preparation of my 1931 doctoral dissertation at Rice University.) The "Discussion and Notes" department was just then in the process of being split, as Professor Carroll V. Newsom took over as Editor-in-Chief at the start of 1947, into a "Mathematical Notes" department, with which I remained, and a "Classroom Notes" department, to be edited by Professor Carl B. Allendoerfer.

Glenn understood my reasons for declining, but I regretted the need for having to do it.

Actually, some years later, as my stint with "Mathematical Notes" drew toward its close in 1951, I did become deeply involved in a second editorial task, serving as the first Managing Editor of the new *Pacific Journal of Mathematics*, Volume 1 of which appeared in 1951. In founding this journal, we had the advantage, in contrast with the circumstances surrounding the Topsy-like origin in 1926 of the predecessor of the *Mathematics Magazine*, of knowing in advance what sort of publication we were starting, and of being able to make plans and arrangements accordingly. *PJM* is sponsored jointly by leading universities and other institutions engaged in mathematical research in the Western United States and Canada, and preferably by similar institutions in the rest of the Pacific Basin; and the journal is democratically run by representatives of all the sponsoring institutions.

It might seem anomalous that I should have espoused the regionally restrictive adjective *Pacific* after having recommended eschewing *National*. But *National* had seemed to me to imply, falsely, that the material in the *Magazine* was intended especially *for* mathematics readers in the United States and Canada; whereas *Pacific* indicated that the *Journal* was *from* the mathematics group in the Pacific area, an acceptance of responsibility to provide our share of journal space and editorial service to the world's mathematical research community.

Glenn had planned to give the first issue of the *Mathematics Magazine* the date of January-February, 1947, and to designate it Vol. 20, No. 3, following the last issue of the *National Mathematics Magazine*, Vol. 20, No. 2, November, 1945, with a loss of time of just one year due to the transition. Because of unexpected printing difficulties outside Glenn's control, however, the first issue of the new series was further delayed to September-October, 1947, and for this reason it was decided to let this issue start a new volume, with the issue designated Vol. 21, No. 1. It was further decided to reduce the number of issues per yearly volume from eight to five, with the remaining four issues dated November-December, January-February, March-April, and May-June. The subscription price remained at $3 per volume.

Glenn had assumed responsibility for furnishing copies of the *Mathematics Magazine* that were due those who had paid in advance for subscriptions to the *National*

Mathematics Magazine, knowing that in the long run the subscribers would be a great asset. The resulting initial financial pinch was partially alleviated by the institution of individual sponsoring subscriptions, at $10 per year. There were nearly 30 sponsoring subscribers before the first issue of the new series appeared, and the number ultimately grew to a maximum of about 45. Further relief was obtained by increasing the amount of space in the journal allocated to paid advertising.

An attractive cover design for the new series resulted from a contest Glenn conducted among his students at UCLA. The contents covered a wide variety of mathematical topics, including carefully prepared expository articles of interest to both the college teacher of mathematics and the advanced mathematics student, research articles at the collegiate and advanced levels, historical and pedagogical papers, and semipopular and popular pages. In addition, there were sections devoted to reviews, to problems and questions, and to mathematical miscellany. A short biographical sketch of each author was included; and information about an article, or an indication of the amount of mathematical background required of the reader, was sometimes given on the Contents page.

Authors of articles in Volume 21 included, among others, J.A. Shohat (posthumous), H.V. Craig, G.A. Miller, E.T. Bell, J. Kampe De Feriet, A.D. Michal, I.S. Sokolnikoff, F.D. Murnaghan, Gerald B. Huff, Victor Thebault, Marshall H. Stone, H.S. Vandiver, Maurice Fréchet, and Gordon Pall. A large and well qualified editorial staff assured continued excellent quality of the material presented.

A series of articles was instituted in Volume 21 that briefly described the topics generally covered in various courses in mathematics, beginning with high-school algebra and extending well into graudate work. I contributed to this series, as did several of the authors already mentioned, and also, among others, Richard Arens, Richard Bellman, Herbert Busemann, H.S.M. Coxeter, J.H. Curtiss, John W. Green, Dick Wick Hall, Magnus R. Hestenes, D.W. Hyers, Glenn James, Robert C. James, Olga Taussky, and John Todd. There were 27 of these articles in all, and they were subsequently collected into an attractive-looking book which was published in 1957. Since the chapters of the book were concerned with branches of mathematics, I suggested that the book itself be titled *The Tree of Mathematics*. It sold well; and since the composition work had already been done for publication in the *Mathematics Magazine*, since it could be advertised economically in the *Magazine*, and since orders were filled from the James family home, it netted a gratifying profit for continued publication of the journal.

Production and distribution work for the journal was largely conducted in the family home on a sturdy ping-pong table constructed by Glenn's son Raymond. Glenn's wife Inez served without pay as Circulation Manager, keeping all records on cards in file boxes, attending to all correspondence, and hand-addressing thousands of wrappers for copies of issues of the journal.

After only three issues, a Varityper machine was purchased, for Glenn felt that the composition work could then be done at home more economically and also more promptly and reliably than elsewhere. Thereafter all composition work on the journal was done by the family: first by son Arthur, and then by Arthur's wife Jean while Arthur was in medical school; next by son Glenn and then by young Glenn's wife Yolanda; and finally in two long successive stints by daughters Frances Nicklas and Alice, the latter now a recent graduate student in mathematics at UCLA and the wife of Professor Edward A. Bertram of the University of Hawaii Mathematics Department.

Later, a cutting machine, a folding machine, and a power stapler were purchased. After that, none of the work except the actual printing was done outside the home, and of the work done in the home only the Varityper composition work was paid for by the journal. Son Robert and his wife Edith often drove up from Claremont to the family home in Pacoima, and also the neighboring Elias Sotelo family frequently came in, to join the family group around the ping-pong table as they worked at collating, stapling, and wrapping copies of the *Magazine*.

Daughter Alice ran the folding machine. Son Howard, handicapped with Down's syndrome, helped his father with the cutting and trimming. Once, in a momentary breakdown of coordination between father and son, Glenn lost a finger tip to the cutting machine. Seeing what had happened to his Pappy, Howie howled in anguish and fled the scene.

The severed nerve bothered Glenn for the rest of his life. Long afterward, in recalling the incident, Glenn told me with a tearful smile that Howie would never again go near the machine.

Glenn had said he could make the *Magazine* be financially self-sustaining, and he had done just that--if one puts no monetary value on the very valuable time, thought, and effort freely contributed by the James family and their friends. Under Glenn's leadership, the journal had grown greatly in stature and in circulation, with subscribers in about 50 countries.

But his was a tenuous regime that could not indefinitely be sustained, depending as it did on his own continued ability to serve. Ultimately, something had to give.

That something turned out to be his eyesight. With his vision rapidly going from bad to worse, Glenn knew that he must stop. First he made arrangements for continuation of the editorial work and for funding the production of the *Mathematics Magazine* in a conventional way, at least on a temporary basis. Then, after twelve years of uninterrupted service, in Vol. 33, No. 2, November-December, 1959, Glenn James announced his immediate retirement from "the work that is so near to my heart."

The Mathematical Association of America takes over

Early in 1959, negotiations for an arrangement between MAA and the *Mathematics Magazine* were entered into by representatives of the Association and the Executive Committee of the *Magazine*. By that time, Professor Glenn James had built the subscription list of the *Mathematics Magazine* up from just a few hundred to an impressive 2,200, and for the last two years the journal had operated in the black: "a tribute to your own hard work and good editorship," as MAA President Carl B. Allendoerfer wrote to him.

The negotiations proceeded smoothly and resulted in action by the MAA Board of Governors, as detailed in the following letter, dated September 22, 1959.

> Dear Dr. James:
>
> For your information, I am quoting a paragraph from the tentative copy of the minutes of the meeting of the Board of Governors of the Association held at Salt Lake City on August 31.
>
> > "Professor Roy Dubisch reported for the Committee on Publications. The Board voted that the Secretary of the Association be directed to notify the Executive Committee of the *Mathematics Magazine* that a fund of $5,000 has been set aside against which the Executive Committee of the *Mathematics Magazine* may draw for publication expenses for an eighteen-month period beginning September 1, 1959, provided that a Managing Editor for this period be appointed by the Executive Committee of the *Mathematics Magazine* with the advice and approval of the President of the Association, and provided that the *Mathematics Magazine* carry a by-line "Published with the assistance of the Mathematical Association of America," and provided that during this 18-month period the Executive Committee of the *Mathematics Magazine* grant to the Association the first option of taking over the permanent publication of the *Mathematics Magazine*."
>
> Will you, therefore, take up with the Executive Committee of the *Mathematics Magazine* the various matters mentioned in the above motion. I am sure that President Allendoerfer will be happy to consult with you regarding the appointment of a Managing Editor for the *Mathematics Magazine*.
>
> If the matters contained in the above motion meet with the approval of the Executive Committee of the *Mathematics Magazine*, I shall immediately set aside the sum of $5,000 for the use of the *Mathematics Magazine* and will pay from this fund any publication expenses authorized by you or by your deputy. In order to avoid writing a large number of small checks, I would prefer to make payments at monthly intervals, if this arrangement

is satisfactory with you.

With best wishes, I am

Yours,

Harry M. Gehman
Secretary-Treasurer

Professor Robert E. Horton of Los Angeles City College, who had served as Editor of the "Problems and Questions" department of the *Magazine* since 1953 (and who later became President of Los Angeles Valley College), was appointed in the prescribed manner as (Managing) Editor of the journal, effective with the Vol. 33, No. 3, January-February 1960, issue; Professor Donald H. Hyers became Associate Editor; Professor Glenn James became Editor Emeritus; the Editorial Staff otherwise remained unaltered; and the Executive Committee, to which Professor D.V. Steed had been added in 1957 following the death of Professor A.D. Michal in 1953, was dissolved.

The $5,000 grant for the financial support of the *Magazine* was paid from the Jacob Houck Memorial Fund, and accordingly the requested line of acknowledgement in the journal was made to read:

> Published with the assistance of the Mathematical Association of America by an appropriation from the Jacob Houck Memorial Fund.

Next, on August 29, 1960, the MAA Board of Governors, meeting at Michigan State University, East Lansing, acted upon the recommendation of the Committee on Publications under the Chairmanship of Professor Roy Dubisch to approve the following statement regarding the journal:

> The Association shall take over the publication and editorship of the *Mathematics Magazine* to be sold on a subscription basis with, possibly, a reduced rate to members of the Association and the National Council of Teachers of Mathematics. The mathematical level of the *Magazine* shall be below that of the *Monthly* but above that of the *Mathematics Teacher*. The editor of the *Magazine* shall be an *ex officio* member of the Committee on Publications.

The inside front cover of the next issue of the *Magazine* to appear after this action, Vol. 34, No. 2, November-December, 1960, revealed the transfer of the business management of the journal to the Buffalo, New York, offices of the Association; and an editorial in the issue expounded the purposes of the journal.

A following editorial in the next issue, Vol. 34, No. 3, announced the formal transfer of ownership of the *Mathematics Magazine* to the Association. It also announced, with an expression of sincere gratitude to the sponsoring subscribers who had supported the *Magazine* so faithfully and generously throughout the years, that since the Association was assuming the full financial support of the publication, sponsoring subscriptions were being discontinued and no further subscriptions of this kind would be accepted.

Continuing with details of the transfer of management, at its meeting in Washington, D.C., on January 25, 1961, the Board of Governors, acting upon the recommendations of its Committee on Publications under the Chairmanship of Professor R.P. Dilworth, approved the following:

1. As soon as feasible, the volume year for the *Mathematics Magazine* should be changed to coincide with the calendar year.
2. The first Editor of the *Mathematics Magazine* shall be appointed for a term extending through December, 1963. Succeeding Editors shall be appointed for five-year terms with the priviso that no Editor may serve two consecutive terms.
3. Appropriate steps should be taken to ensure that the transfer of the *Mathematics Magazine* to the Association be legally valid.
4. The Board of Governors, upon recommendation by the Editor, shall appoint the Editorial Board of the *Mathematics Magazine* for terms to coincide with the term of the Editor.

The Board then proceeded to elect Professor Robert E. Horton as its first Editor of the *Mathematics Magazine*, for the three-year term January 1, 1961, to December 31, 1963. It also authorized continuation of the subscription rate of $3 per yearly volume. The volume year for the *Magazine* was made to coincide with the calendar year by including two extra issues in Vol. 34: No. 6, September-October, 1961, and No. 7, November-December, 1961. Starting with Vol. 35, 1962, the *Mathematics Magazine* had a new cover design; and the five successively numbered issues in each volume have since then been dated January, March, May, September, and November.

The *Magazine* has thrived under MAA ownership, despite the fact that inflation has forced several increases in subscription rates. In 1968 the fee was increased to $4 per year. In 1973 it became $7, with a reduction to $5 for members of the Association and for members of Mu Alpha Theta. In 1975, these last two amounts were increased to $10 and $7, respectively.

MAA has more recently undertaken the publication of a third journal, the *Two-Year College Mathematics Journal*. Published originally by Prindle, Webber, and Schmidt, Inc., in collaboration with the Mathematical Association of America, this journal was started in the spring of 1970, with two issues per yearly volume. The number of issues per volume was increased to three with Volume 4, to four with Volume 5, and to five with Volume 8. On the recommendation of the Committee on Publications, the Association assumed ownership of *TYCMJ* with Vol. 3, No. 3, September, 1974, and the journal therewith became an official MAA journal.

It had, in fact, been recommended much earlier, in the winter of 1940-41, by a committee headed by Past President D.R. Curtiss, that MAA should establish a journal like *TYCMJ* [5, p. 44]: "For his committee, Curtiss suggested that instead of enlarging the *Monthly* to include more material of interest to junior-college teachers, the Association might rather consider a second journal, with members of the Association being given a choice between the two publications."

Starting in 1976, the three journals of the Association have been available to members in a variety of subscription packages, with corresponding charges.

Coincidentally, starting in 1976, the imaginative new Editors of the *Mathematics Magazine* revised the format and adopted several clever new editorial ideas. The page size was increased to match that of the *Monthly*, and the interior layout was redesigned. The cover of each issue incorporates an artistic illustration related to the content.

Whether because of the subscription-package deals mentioned above, or because of the appeal of the new format and content of the *Mathematics Magazine*, or both, the number of *Magazine* subscribers jumped from 6,124 on January 1, 1975, to 8,665 on January 1, 1978.

The editors of the journal, along with their institutions and the dates on which their editorships became effective, have been as follows:

S.T. Sanders	Louisiana State University, Baton Rouge	1926
Glenn James	University of California, Los Angeles	1947
Robert E. Horton	Los Angeles City College, Los Angeles	1960
Roy Dubisch	University of Washington, Seattle	1964
Stephen A. Jennings	University of Victoria, Victoria, B.C.	1969
G.N. Wollan	Purdue University, Lafayette	1971
J. Arthur Seebach, Lynn Arthur Steen	St. Olaf College, Northfield, MN	1976

We have devoted relatively little space to the work of the editors of the *Mathematics Magazine* who served under MAA appointment, partly because they served more limited terms, but also because they were spared the extra burdens of financial responsibility and business management. The ever-increasing popularity of the journal bespeaks the excellence of their contributions.

Epilogue

Thus ends this brief account of the first half century of the *Mathematics Magazine*. Since we have given rather less attention to the "modern" editors, the account

is, in effect, the story of the heroic struggle of the first two editors; and a tribute to persons like their two devoted Circulation Managers named Inez--Land and James--who worked with them and were content to serve in silence.

Samuel T. Sanders passed away, from a short illness, in Mobile, Alabama, on March 19, 1970, at the age of ninety-eight.

Glenn James moved from his home in Pacoima, where he had published the *Magazine*, up the California coast to Arroyo Grande. There he died of heart failure, on September 2, 1961, one month before his eightieth birthday.

Each had had a long and fruitful career, and each had lived to see his beloved *Mathematics Magazine* in a secure haven with the Mathematical Association of America.

References

[1] T.F. Mulcrone, S.J., In Memoriam Samuel T. Sanders 1872-1970, *Mathematics Magazine*, 43 (1970) 175-177.

[2] S.T. Sanders, Retrospect and Prospect, *National Mathematics Magazine*, 10 (1935-36) 286.

[3] The Editors, Acknowledgement, *Mathematics Magazine*, 33 (1959-60) 118.

[4] D.H. Hyers, Glenn James 1882-1961, *Mathematics Magazine*, 34 (1960-61) 310.

[5] Carl B. Boyer, The First Twenty-Five Years, pages 24-54, in Kenneth O. May (editor), *The Mathematical Association of America: Its First Fifty Years*, The Mathematical Association of America, Washington, D.C., 1972.

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Agricultural Field Trials. Fundamental Distribution of Errors for, *Baker, G. A.* 16 (1941) 7-19.

Air Corps Recommendations for the Pre-Training of Aviation Cadets. *Hart, William L.* 16 (1942) 364-367.

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Albion College. Student Tutorial System in Freshman Mathematics in, *Sleight, E.R.* 10 (1935) 101-103.

Alexandria. Hypatia of, *Richeson, A.W.* 15 (1940) 74-82.

Alfred. Remark on the Paper "Sums of Squares of Consecutive Odd Integers" by Brother U., *Makowski, Andrzej.* 43 (1970) 212-213; *Comments* 44 (1971) 242; 45 (1972) 279.

Algebra: *see also* Boolean, Linear.

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Associative, *Vandiver, H.S. and Weaver, Milo W.* (Parts III, IV). 25 (1952) 233-250; 27 (1953) 1-18; 29 (1956) 135-151; 30 (1956) 1-8; *Errata* 30 (1957) 219.
Algebra and Geometry. The Unit Assignment in, *Bostick, Lucille M. and Payne, William A.* [Erroneously]. 8 (1934) 76-80; *Reprinted* 162-167.
Algebra and the Seven Objectives. *Shell, Lorraine.* 5:1 (1930) 11-16.
Algebra and to Number-Theory, with Comments on the Tarry-Escott Problem. Applications of an Operator to, *Grossman, Howard D.* 19 (1945) 385-390.
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Algebra Education]. Introduction and Presentation of the Formula as the First Unit in Ninth Mathematics [: *Riley, Martin S.* 7:1 (1932) 5-10.
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Algebra. Hierarchic, *Prestrud, Marcia Beckmann.* 36 (1963) 43-53.
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Algebra. On Certain Deficiencies of College Freshmen in, *Murray, S.B.* 6:3 (1931) 14-15.
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Algebra. On the Use of the Equivalence Symbol and Parentheses Symbols in Associative Distributive, *Vandiver, H.S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Algebra. Open Mappings and the Fundamental Theorem of, *Thompson, R.L.* 43 (1970) 39-40; *Comment* 45 (1972) 113.
Algebra: Operations Without Numbers. Advanced, *Arens, Richard.* 24 (1951) 253-264.
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Algebra Taught in Colleges Really 'College Algebra'? Is the, *Willerding, Margaret F.* 27 (1954) 201-203.
Algebra. The First College Course in, *Gorski, T.M. and Powers, William H.* 13 (1938) 34-36.
Algebra. The First Printed Armenian Treatise on Arithmetic and, *Shaw, Allen A.* 11 (1936) 117-125.
Algebra. The Grammar of, *Hills, E. Justin.* 22 (1948) 83-99.
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Algebraic Analysis but Also a Probability Problem? The Last Theorem of Fermat Not Only a Problem of, *Elston, Fred G.* 28 (1955) 150-152.
Algebraic Curves. The Higher Singularities of, *Walker, B.M.* 12 (1938) 263-285.
Algebraic Equation as a Balance. The, *Buchanan, H.E.* 5:6 (1931) 20-23.
Algebraic Equation. Concerning Upper and Lower Bounds of the Roots of a Real, *Kennedy, E.C.* 14 (1939) 76-80.
Algebraic Equations by Infinite Series. The Solution of, *Lewis, Arthur J.* 10 (1935) 80-95.
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All-Purpose, 'Floating-Point' Chart for the Elementary Arithmetic Operations. An, *Wylie, C.R., Jr.* 43 (1970) 82-84.
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America Today. The Theory of Numbers in, *Christilles, William Edward.* 36 (1963) 188-189.
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American Arithmetic. The, *Stoddard, John F.* 30 (1957) 220-221.
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American Mathematical Journals [Parts I-XIX]. A History of, *Finkel, Benjamin F.* 14 (1940) 197-210, 261-270, 317-328, 383-407, 461-468; 15 (1940) 27-34, 83-96, 121-128; 15 (1941) 177-190, 245-247, 294-302, 357-368, 403-418; 16 (1941) 64-78; 16 (1942) 188-197, 284-289, 341-344, 381-391; 17 (1942) 21-30.
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Amicable Numbers. On the Number of Prime Factors of a Pair of Relatively Prime, *Hagis, Peter, Jr.* 48 (1975) 263-266.
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Analogs of the Triangle Geometry in the Kasner Plane. Some, *Chi-Ho, Loong.* 17 (1942) 8-12.
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Analytic Geometry. A Use of Inequalities for Loci in, *Jennrich, Robert I. and Killgrove, Raymond B.* 35 (1962) 105-106.
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Application of the Summation by Parts Formula to Summability of Series. *Fort, Tomlinson.* 26 (1953) 199-204.
Applications. A Note on a Theorem in Complex Variables and, *Romer, Eugene M.* 35 (1962) 173-174.
Applications. Arithmetical Congruences with Practical, *Law, Carol.* 31 (1958) 221-227.
Applications. Difference Equations and Their, *Pipes, Louis A.* 32 (1959) 231-246.
Applications of an Operator to Algebra and to Number-Theory, with Comments on the Tarry-Escott Problem. *Grossman, Howard D.* 19 (1945) 385-390.
Applications of Complex Numbers to Geometry of Circles. *Shaw, Allen A.* 14 (1939) 26-36.
Applications of Determinants to Geometry. Some, *Izard, Roberta and Wilson, Mary Elizabeth.* 6:4 (1932) 19-23.
Applications of Finite Differences. Some, *Creely, Joseph W.* 26 (1953) 189-197.
Applications of Unity Ratios. *Luter, J.G.* 33 (1959) 30-32.
Applications of van der Waerden's Theorem [on Partitions of Integers]. On, *Rabung, John R.* 48 (1975) 142-148.
Applied Arithmetic]. Mathematician and the Carpenter [: *Nichols, Irby C.* 4:2 (1929) 21-24.
Applied Linear Algebra. A Theorem in, *Cvetkov, B.* 37 (1964) 148-152.
Applied. Mathematics, *Sleight, E.R.* 9 (1935) 219-223.
Applied Mathematics. Open Problems of Interest in, *Winthrop, Henry.* 37 (1964) 112-118.
Applied Mathematics]. The Washing of Socks [: *Johnson, Paul B.* 39 (1966) 77-83.
Appreciation of Sophie Germain. An, *Thomas À. Kempis, Sister M.* 14 (1939) 81-90.
Approach to a Class in Freshman Mathematics. An, *Theobald, John A.* 8 (1933) 51-54.
Approach to Non-Euclidean Trigonometry. An, *Fulton, Curtis M.* 22 (1949) 255-262.
Approach to Trigonometric Inequalities. An, *Ehret, Harold.* 43 (1970) 254-257.
Approach to Trigonometry. An, *O'Toole, A. L.* 13 (1939) 373-375.
Approximate Formula for Evaluating Factorial Numbers. An, *Town, George R.* 10 (1936) 259-267.

Approximate Numbers. A Note on Computation with, *Perry, N.C. and Morelock, J.C.* 31 (1958) 155-156.
Approximate Solutions of the [Trigonometric] Equation x = tan x. Complete, *Frankel, Sidney.* 11 (1937) 177-182.
Approximate Trisection of an Angle with Euclidean Tools. *Chen, Tzer-Lin.* 39 (1966) 261-264.
Approximating Logarithms. A Simple Method for, *Churchill, Edmund.* 22 (1949) 277-278.
Approximating Polygons by Rational Polygons. On, *Sheng, T.K. and Daykin, D.E.* 39 (1966) 299-300.
Approximating the Roots of an Equation by Iteration. On, *Hines, Jerome.* 24 (1951) 123-127.
Approximating the Zeros of a Polynomial. *Cook, Erben, Jr.* 35 (1962) 165-172.
Approximation. An Elementary Proof of Jackson's Theorem on Mean-, *Cheney, E. W.* 38 (1965) 189-191.
Approximation for any Positive Integral Root. An, *Taylor, Gerald D.* 35 (1962) 107-108; *Sequel* 37 (1964) 187-192.
Approximation for any Positive Integral Root." An Extension of "An, *Romer, Eugene M.* 37 (1964) 187-192.
Approximation for Finding the N-th Root of a Number. An Iterative, *Gould, H. W.* 33 (1959) 61-69.
Approximation Method. Normalizing Vogel's, *Larson, Roland E.* 45 (1972) 266-269.
Approximation of Real Continuous Functions on the Real Line by Infinitely Differentiable Functions. Uniform, *Pursell, Lyle E.* 40 (1967) 263-265.
Approximation of Real Roots of Equations by Simple Continued Fractions. The, *Garver, Raymond.* 7:2 (1932) 20-22.
Approximation of Roots. A Determinant Formula for Higher Order, *Wolfe, J.M.* 31 (1958) 197-199.
Approximation. On e and Its, *Lubin, C.I. and Macintyre, A.J.* 43 (1970) 98-101.
Approximation. On Root, *Smith, H.L.* 17 (1943) 312-314.
Approximation Over Semi-Infinite and Infinite Intervals. Polynomials for Best, *Salzer, Herbert E.* 23 (1949) 59-69.
Approximation Theorem. The Generalized Weierstrass, *Stone, Marshall H.* 21 (1948) 167-184, 237-254.
Approximation To π. On Huygens', *Nanjundiah, T.S.* 44 (1971) 221-223.
Approximation to the Square of the Circle. A Note on an, *Lowston, Walter H.* 17 (1942) 81-82.
Approximations for e. Geometric, *Buckholtz, J.D.* 47 (1974) 138-143.
Approximations for Trigonometric Functions. Rational, *Cheney, Wm. Fitch, Jr.* 19 (1945) 341-342.
Approximations of e. Rational, *Trigg, Charles W.* 35 (1962) 38, 54.
Approximations to Incommensurable Numbers by Ratios of Positive Integers. *Thomas, Paul D.* 36 (1963) 281-289.
Approximations to Solutions of Transcendental Systems. Higher Order, *Maley, C.E.* 34 (1960) 97-99.
Approximations to Square Roots. *Ransom, William R.* 23 (1949) 54-55.
Approximations to the Mode. On Graphical, *Larsen, Harold D.* 21 (1947) 35-39.
Arc Figures. Circular, *Ford, Lester R.* 10 (1936) 290-293.
Arc Length. A Class of Functions Having Elementary Integrals for, *Dotson, W.G., Jr. and Savage, R.G.* 43 (1970) 42-43.
Arc Length. A Note on, *White, John T.* 43 (1970) 44.
Arc Length. A Theorem on, *Kaucher, John.* 42 (1969) 132-133.
Archimedean and Completeness Properties. A Comparison of the, *Robertson, Jack M.* 43 (1970) 92-93.
Archimedes Really Twins? Are the Twin Circles of, *Bankoff, Leon.* 47 (1974) 214-218.
Arcs of the Complex Domain. The Derivative of a Polynomial on Various, *Sewell, W. E.* 12 (1938) 167-170.
Are Many 1-1 Functions on the [Infinite Set of] Positive Integers Onto [with Probability One]? *Neuts, Marcel F.* 41 (1968) 103-109.
Are the Twin Circles of Archimedes Really Twins? *Bankoff, Leon.* 47 (1974) 214-218.
Are There Any Questions? *Tullier, Peter.* 14 (1940) 278.
Area-Diameter Relations for Two-Dimensional Lattices. *Scott, P.R.* 47 (1974) 218-221.
Area in a Corner. Maximum, *Hoggatt, Verner E., Jr.* 26 (1952) 95-97.
Area of a Circle. A Talmudic Approach to the, *Epstein, Sheldon and Hochberg, Murray.* 50 (1977) 210.
Area of a Floor. Miss A's Method of Finding, *Coultrap, M.W.* 6:5 (1932) 6-8.
Area of a Region Bounded by a Closed Polygon with Given Sides. Maximum, *Demir, Huseyin.* 39 (1966) 228-231.
Area of Surface. The Notion of, *Smith, H. L.* 5:7 (1931) 36-43.
Area Theorem. A Proof of the Moment-, *Hoyt, J.P.* 30 (1956) 95-97.
Area Under Constraint. Maximum, *Lin, Tung-Po.* 50 (1977) 32-34.
Areas Obtained When One Triangle is Inscribed in Another. Inequalities Concerning the, *Rigby, J.F.* 45 (1972) 113-116.
Areas Swept Out by Tangent Line Segments. *Hammer, Preston C.* 28 (1954) 65-70.

Arguments into Freshman Algebra. On Introducing, *Huff, Gerald B.* 28 (1955) 147-148.
Aristotelian Definition of Mathematics. A Simple Extension of the, *Kennedy H.* 30 (1957) 207-208.
Arithmetic According to Cocker. *Sleight, E.R.* 17 (1943) 248-257.
Arithmetic-Algebra-Geometry, Each as an Aid to the Study of the Other. *Rankin, W.W.* 25 (1952) 263-268.
Arithmetic and Algebra. The First Printed Armenian Treatise on, *Shaw, Allen A.* 11 (1936) 117-125.
Arithmetic. Binary Digital. *Pervin, William J.* 43 (1970) 41-42.
Arithmetic Education]. Apparently a Successful Presentation [: *Coultrap, M. W.* 6:4 (1932) 9-11.
Arithmetic, Geometric and Harmonic Means. Geometrical Interpretations of the Inequalities Between the, *Shisha, O.* 39 (1966) 268-269.
Arithmetic in the United States. Warren Colburn and His Influence on, *Richeson, A.W.* 10 (1935) 73-79.
Arithmetic]. Mathematician and the Carpenter [: *Nichols, Irby C.* 4:2 (1929) 21-24.
Arithmetic]. Mathematics for Service [: *Forno, Dora M.* 4:6 (1930) 13-15.
Arithmetic Mean] and [Geometric Mean] Inequality. Generalizations of the [, *Daykin, D.E. and Eliezer, C.J.* 40 (1967) 247-250.
Arithmetic Mean-Geometric Mean Inequality: A New Proof. The, *Chong, Kong-Ming.* 49 (1976) 87-88.
Arithmetic Mean-Geometric Mean Inequality] that Would Please N.D. Kazarinoff. A Proof [of the, *Ogilvy, C. Stanley.* 38 (1965) 110.
Arithmetic Methods in Elementary Algebra. On, *Mitchell, B.E.* 26 (1953) 153-154.
Arithmetic Operations. An All-Purpose 'Floating-Point' Chart for the Elementary, *Wylie, C.R., Jr.* 43 (1970) 82-84.
Arithmetic] Operations on Signed Numbers. The [, *Miser, Wilson L.* 7:3 (1932) 3-5.
Arithmetic. Pestalozzi and the American, *Sleight, E.R.* 11 (1937) 310-317.
Arithmetic Progression. Alternate Primes in, *Trigg, Charles W.* 35 (1962) 42.
Arithmetic Progression. Integers, No Three in, *Chiang, Pou-Shun and Macintyre, A.J.* 41 (1968) 128-130.
Arithmetic Progression. On Squares in, *Goodrich, Merton Taylor.* 39 (1966) 87-88.
Arithmetic Progressions of Length Three. A Note on, *Dressler, Robert E.* 47 (1974) 31-34.
Arithmetic Progressions of N Relatively Prime Integers. *Matlin, Sam.* 34 (1960) 29-30.
Arithmetic Progressions]. On Primes in [, *Vaidya, A.M.* 40 (1967) 29-30.
Arithmetic Progressions. Representations of Positive Integers as Sums of, *Andrushkiw, Joseph W.; Andrushkiw, Roman I. and Corzatt, Clifton E.* 49 (1976) 245-248.
Arithmetic. Some Combinatorial Problems of, *Klamkin, Murray S. and Newman, D. J.* 42 (1969) 53-56.
Arithmetic. The American, *Stoddard, John F.* 30 (1957) 220-221.
Arithmetic. The Scholar's, *Sleight, E.R.* 10 (1936) 193-199.
Arithmetic to the Solution of Problems. Comparison of Two Methods of Teaching Pupils to Apply the Mechanics of, *Will, Alma.* 5:2 (1930) 3-10.
Arithmetic vs Algebra. *Ransom, William R.* 26 (1953) 275.
Arithmetical Congruences with Practical Applications. *Law, Carol.* 31 (1958) 221-227.
Arithmetical Functions of the Elementary Transcendental Functions. Analogues for, *Bell, E.T.* 21 (1947) 65-73.
Arithmetical Problem Involving the Sum of Integers in [Arithmetic Progressions]. An, *Young, Samuel S.H.* 43 (1970) 89-92.
Arithmetics. Early American, *Sleight, E. R.* 10 (1935) 9-12.
Arithmetics. Early English, *Sleight, E.R.* 16 (1942) 198-215, 243-251.
Armenian Treatise on Arithmetic and Algebra. The First Printed, *Shaw, Allen A.* 11 (1936) 117-125.
Armenian Treatise on Geometry and Trigonometry. The First Printed, *Shaw, Allen A.* 10 (1936) 287-289.
Arrangements Generated by n Points. Polygons in, *Grünbaum, Branko.* 46 (1973) 113-119.
Array] Conjecture of Golomb. A Partial Solution to a [n, *Cohen, Martin J.* 38 (1965) 95.
Art and Mathematics. A Discussion of the Methods of Science, History, *Miller, Walter M.* 10 (1936) 200-204.
Artus de Lionne. Ueber die [History of] Quadraturen des, *Hofmann, Josef Ehrenfried.* 12 (1938) 223-230.
Arzelà-Ascoli Theorem. On the, *Green, John W. and Valentine, F.A.* 34 (1961) 199-202.
As to Teaching Procedures. *Weaver, J.H.* 10 (1936) 141-142.
Ascoli Theorem. On the Arzelà-, *Green, John W. and Valentine, F.A.* 34 (1961) 199-202.
Aspects of Primes and Integers. Some, *Sanders, S.T.* 5:4 (1930) 19-23.
Associate on a Given Point. Circle, *Bailey, D. Moody.* 37 (1964) 224-226.

Associative Algebra and an Algebraic Theory of Numbers (I-IV). A Development of, *Vandiver, H.S. and Weaver, Milo W.* (Parts III, IV). 25 (1952) 233-250; 27 (1953) 1-18; 29 (1956) 135-151; 30 (1956) 1-8; *Errata* 30 (1957) 219.
Associative Algebras. Two-Dimensional Power-, *Wallace, E.W.* 43 (1970) 158-162.
Associative Distributive Algebra. On the Use of the Equivalence Symbol and Parentheses Symbols in, *Vandiver, H.S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Associative Operations on Integers. Some, *Lambek, J. and Moser, Leo.* 29 (1955) 59-62.
Asymmetric Propeller. The, *Bankoff, Leon; Erdös, Paul and Klamkin, Murray S.* 46 (1973) 270-272.
Asymptotes. Remarks on, *Gonshor, Harry.* 41 (1968) 197-198.
Asymptotic Behavior of a Certain Product. The, *Liu, Ming-Chit.* 45 (1972) 85-88.
Attitude of the Louisiana State Department of Education Toward Mathematics. The, *Harris, T.H.* 5:4 (1930) 3-4.
Autobiography. Mathematics and, *Glenn, Oliver E.* 28 (1955) 299-302.
Automatic Computation as an Aid in Aeronautical Engineering. *Lowe, John.* 25 (1951) 37-42.
Automorphisms of the Complex Number Field. On the, *Soundararajan, T.* 40 (1967) 213.
Automorphisms of the Complex Numbers. *Yale, Paul B.* 39 (1966) 135-141; *Sequel* 40 (1967) 213.
Averages. Velocity, *Cargo, Gerald T.* 50 (1977) 257-258.
Aviation Cadets. Air Corps Recommendations for the Pre-Training of, *Hart, William L.* 16 (1942) 364-367.
Axes. A Note on the Rotation of, *Hagis, Peter, Jr.* 36 (1963) 127-128.
Axes Associated with the Circumcircle. Some Radical, *Bailey, D. Moody.* 38 (1965) 199-205, 276-283; 39 (1966) 9-17.
Axes of an Ellipse, Given a Pair of Semi-Conjugate Diameters. Construction of the Position and Extent of the, *Mills, C.N.* 26 (1953) 227-228.
Axial Transformation. Laguerre's, *Pedoe, Dan.* 48 (1975) 23-30.
Axiom of Choice in the Development of Abstract Set Theory. Some Comments on the Role of the, *Zlot, William Leonard.* 32 (1959) 115-122.
Axiom of Finite Induction. A Common Misapplication of the, *Andrew, David R.* 35 (1962) 289.
Axioms and Their Relations to Secondary School Mathematics. *McCoy, Dorothy.* 6:4 (1932) 11-14.
Axioms for a Seminatural System. Completely Independent, *Jacobson, Richard A.* 41 (1968) 88-89; *Sequel* 43 (1970) 93-94.
Axioms for Geometry. Vector Space, *Fulton, Curtis M.* 36 (1963) 299-301, 311, 318.
Axioms for the Complex Numbers. A Categorical System of, *Bosch, W. and Krajkiewicz, P.* 43 (1970) 67-70.
Axioms of a Seminatural System. On the Complete Independence of the, *Stern, Samuel T.* 39 (1966) 232-236; *Sequels* 41 (1968) 88-89; 43 (1970) 93-94.
Axis of Two Circles. Radical, *Bailey, D. Moody.* 38 (1965) 44-45.
Axis Rotation Via Partial Derivatives. *Hagis, Peter, Jr.* 43 (1970) 211-212.

B

B.F. Thibaut [1775-1832], Early Master of the Art of Teaching and Popularing Mathematics. *Dunnington, G. Waldo.* 11 (1937) 318-323.
Background of Understanding for General Mathematics [Instruction]. A, *Madden, Richard.* 25 (1952) 229-232.
Ballistics. Exterior, *Green, John W.* 25 (1951) 87-91.
Banach Space. Integration of Functions in a, *Macphail, M.S.* 20 (1945) 69-78.
Banach Space Methods. New Proofs of Some Theorems of Hardy by, *Taylor, Angus E.* 23 (1950) 115-124.
Banach Spaces. Series Representation of Elements in Separable, *Hansen, Robert C.* 45 (1972) 190-194.
Barber's Paradox... On the Construction of Multiple Choice Tests or Barbarous Parodies of the, *Anonymous.* 43 (1970) 213-214.
Barbier's Solution of the Buffon Needle Problem. On, *Klamkin, Murray S.* 28 (1955) 135-138.
Barker on Triangular Matrices. On a Theorem of G.P., *Stojakovic, Mirko.* 44 (1971) 133-134.
Barometer. Calculus Looks at the, *Hatch, Hollis D.* 18 (1943) 127-129.
Base. A Number System with an Irrational, *Bergman, George M.* 31 (1957) 98-110.
Base of the Natural System of Logarithms. Concerning the, *Richert, D.H.* 10 (1936) 205-208.
Base Suggestion? A, *Hood, Rodney T.* 36 (1963) 218.
Base Two. Palindromes by Addition in, *Brousseau, Brother Alfred.* 42 (1969) 254-256.
Bases and Binomial Coefficients. Number, *Howell, John M. and Horton, Robert E.* 35 (1962) 177-179.
Bases and Cycles. On, *Subramanian, Pudukkottai K.* 41 (1968) 117-123.

Bases]. The Number System in More General Scales [, *Alder, Henry L.* 35 (1962) 145-151.
Basic Concepts of Trigonometry. The, *Mazziotta, Estelle.* 22 (1949) 139-150.
Basic Configurations of the Plane Under Certain Groups. *Steele, M. Philip, Sr. and McBrien, V.O.* 23 (1949) 5-14.
Basis. An Identity for the Sum of Digits of Integers in a Given, *Mauclaire, Jean-Loup.* 47 (1974) 225.
Bayes' Formula and a priori Probabilities in the Game of Bridge. *Divinsky, N.* 37 (1964) 235-241.
Bear? What Color Was the, *Schwartz, Benjamin L.* 34 (1960) 1-4.
Beauty, The Beast, and the Pond [: a Puzzle]. The, *Schuurman, W. and Lodder, J.* 47 (1974) 93-95.
Beginner's Algebra--What and How? *Forno, Dora M.* 4:2 (1929) 16-19.
Beginning Statistics at the Track. *Cooke, W.P.* 46 (1973) 250-255.
Behavior of a Special Series. On the, *Beardon, A.F.* 41 (1968) 74-77.
Bergman). What Makes a Genius Tick? (An Interview with George, *Wallace, Mike.* 31 (1958) 282.
Bernoulli and Euler Polynomials. The Multiplication Formulas for the, *Carlitz, Leonard.* 27 (1953) 59-64.
Bernoulli Numbers. A New Property of the, *Valdez, Juan.* 47 (1974) 144-145.
Bernoulli Numbers. Some Numbers Related to the, *Rough, Mike.* 29 (1955) 101-103.
Bernstein Polynomials. A Theorem Concerning the, *Gould, H.M.* 31 (1958) 259-264.
Bernstein Polynomials and Finite Differences. The, *Groetsch, C.W. and King, J.T.* 46 (1973) 280-282.
Bertrand Curves Associated with a Pair of Curves. *Burke, John F.* 34 (1960) 60-62.
Bertrand's Paradox. A New Probability Model for, *Funkenbusch, William W.* 35 (1962) 144.
Bessel Functions. On Infinite Sums of, *Levi, Leo.* 33 (1959) 108.
Beta and the Gamma Functions. Relation Between the, *Konnully, Augustine O.* 41 (1968) 37-39.
Better Elementary Method for Computing Logs and Antilogs. A, *Soble, A.B.* 13 (1939) 231-232.
Between T_2 and T_3. [Topologies], *Sims, B.T.* 40 (1967) 25-26.
Between the [Educational] Devil and the Deep Blue Sea. *Seidlin, Joseph.* 30 (1957) 277-281.
Beyond Quadratics. *Dorwart, Harold L.* 16 (1942) 231-237.
Bicycle Problem. The, *Daykin, D.E.* 45 (1972) 1; *Comment* 46 (1973) 161.
Billiards, A Numerical Investigation. Setting the Handicap in, *Neuts, Marcel F.* 46 (1973) 119-127.
Binary Cubics. A Geometrical Interpretation of the Invariant System of Two, *Rolfe, Kathryn B.* 19 (1945) 211-220.
Binary Digital Arithmetic. *Pervin, William J.* 43 (1970) 41-42.
Binary Digital Sums. An Explicit Expression for, *Trollope, J.R.* 41 (1968) 21-25.
Binary Operations. A Remark on Nonassociative, *Anderson, Philip H.* 44 (1971) 162-163.
Binary Relations as Boolean Matrices. *Feichtinger, Oskar and McAllister, Byron L.* 43 (1970) 8-14.
Binary System. The Octo-, *Wishard, G.W.* 11 (1937) 253-254.
Binomial Coefficients. An Infinite Set of Formulas Connecting, *Graesser, R.F.* 32 (1959) 153-154.
Binomial Coefficients. Bracket Function Congruences for, *Carlitz, Leonard and Gould, H.W.* 37 (1964) 91-93.
Binomial Coefficients. Note on Sums Involving, *Daus, P.H.* 10 (1936) 165-166.
Binomial Coefficients. Number Bases and, *Howell, John M. and Horton, Robert E.* 35 (1962) 177-179.
Binomial Coefficients. The Evaluation of Summations With, *Nowlan, F.S.* 34 (1961) 161-163.
Binomial Coefficients. The Greatest Common Divisor of Certain, *Albree, Joe.* 45 (1972) 259-261.
Binomial Congruences. *Starke, Emory P.* 13 (1939) 163-170.
Binomial Expansion to Negative and Fractional Powers, in Tri-Factorial Form. On Writing the General Term Coefficient of the, *Funkenbusch, William W.* 17 (1943) 308-310.
Binomial Expansions. A Note on the Logarithmic and, *Nanjundiah, T.S.* 44 (1971) 23-24.
Binomial Identity Derived from a Mathematical Model of the World Series. A, *Strait, Peggy Tang.* 48 (1975) 227-228.
Binomial Identity Related to Rhyming Sequences. A, *Levine, Jack.* 32 (1958) 71-74.
Binomial Quadratic Surds. Finding the Cube Root of, *Tan, Kaidy.* 39 (1966) 212-214.
Binomial Theorem in Fourth Dimensional Geometry. The Tesseract $(a+b)^4$: A Demonstration of the, *Herbert, Harriet B.* 15 (1940) 97-99.
Binomial Theorem. The, *Nichols, Irby C.* 8 (1934) 160-162.
Biographical Sketch--Otto Neugebauer. *Dunnington, G. Waldo.* 11 (1936) 14-15.

Biography:] G.A. Miller as Mathematician and Man: Some Salient Facts. [, *Dunnington, G. Waldo.* 12 (1938) 384-387.
Biography:] The Two Wentworths. [, *Gwinner, Harry.* 9 (1935) 165.
Biorthogonality of Characteristic Vectors. *Christiano, John G. and Wiggin, Albert.* 42 (1969) 133-135.
Bipartite Graphs. Determinants, Permanents and, *Harary, Frank.* 42 (1969) 146-148.
Biperiodic Squares. *Herzog, Fritz.* 48 (1975) 97-100.
Biquadratic Equations. Cardan's Formulas and, *Chalkley, Roger.* 47 (1974) 8-14.
Biquadratics. On Dieffenbach's Method for the Solution of, *Lorey, Wilhelm.* 11 (1937) 217-220.
Birational T_{n+2} Associated with a Rational Space C_n. A, *Vest, M.L.* 16 (1942) 377-380.
Birthday Problem. A Direct Attack on a, *Goldberg, Samuel.* 49 (1976) 130-131; *Comments* 49 (1976) 259; 50 (1977) 174.
Birthday Problem. Another Generalization of the, *Nymann, J.E.* 48 (1975) 46-47; *Comment* 48 (1975) 292.
Bisection of Triangles. The Perimetric, *Avishalom, Dov.* 36 (1963) 60-62.
Bisection of Yin and of Yang. *Trigg, Charles W.* 34 (1960) 107-108.
Bisectors of Supplementary Angles: A New Look. *Lariviere, R.* 33 (1959) 25-26.
Bisectors. The Intersection Points of Perimeter, *Sloyan, Sister M. Stephanie.* 36 (1963) 312-313.
Bit of History. A, *Webber, W. Paul.* 5:7 (1931) 14-23.
Block Designs with Finite Bolyai-Lobachevsky Planes. The Connection of, *Spoar, G.* 46 (1973) 101-102.
Bolyai-Lobachevsky Planes. The Connection of Block Designs with Finite, *Spoar, G.* 46 (1973) 101-102.
Bolyai-Lobachevsky Planes. The Existence of Finite, *Heath, Steven H.* 43 (1970) 244-249.
Books or Story Books. Textbooks, Reference, *Montague, Harriet F.* 11 (1936) 152-153.
Boolean Algebra. Logical Paradoxes are Acceptable in, *van Heerden, P.J.* 39 (1966) 175-178.
Boolean Matrices and Logic. *Parker, F.D.* 37 (1964) 33-38.
Boolean Matrices and Switching Nets. *Chen, Wai-Kai.* 39 (1966) 1-8.
Boolean Matrices. Binary Relations as, *Feichtinger, Oskar and McAllister, Byron L.* 43 (1970) 8-14.
Boolean Rings. A Note on Finite, *Smithson, R.E.* 37 (1964) 325-327.
Boundaries of a Generalized Lambert Series. On Natural, *Regan, Francis and Rust, Charles.* 31 (1957) 45-50.
Boundary Value Problem. A, *Edstrom, Clarence R.* 45 (1972) 149-150.
Boundary Value Problems by Use of Finite Transforms. Solution of Certain Linear, *Cell, John W.* 40 (1967) 200-206.
Boundary Value Problems. On Some Contradictions in, *Reid, Walter P.* 37 (1964) 172-175.
Boundary Values for Area of a Triangle. On, *Smith, C.D.* 4:8 (1930) 7-9.
Boundedness of the Sequence $(1+1/n)^n$. *Youse, Bevan K.* 37 (1964) 50-51.
Bounds of Polynomials in Hyperspheres and Fréchet-Michal Derivatives in Real and Complex Normed Linear Spaces. On, *Michal, Aristotle D.* 27 (1954) 119-126.
Bounds of the Roots of a Real Algebraic Equation. Concerning Upper and Lower, *Kennedy, E.C.* 14 (1939) 76-80.
Bounds on the Logarithmic Derivative of Solutions of Second Order Differential Equations. *Ronveaux, André.* 41 (1968) 231-234.
Bounds on the Moduli of the Zeros of a Polynomial. Upper, *Riddell, R.C.* 47 (1974) 267-273.
Bounds on the Roots of a Polynomial. *Hearon, John Z.* 49 (1976) 240-242.
Bourbaki, A French General--Or a Mysterious Society? *Henney, Dagmar Renate.* 36 (1963) 252-254.
Boxes Into Cubelets. Slicing, *Niven, Scott.* 47 (1974) 101-103.
Bracket Function Congruences for Binomial Coefficients. *Carlitz, Leonard and Gould, H.W.* 37 (1964) 91-93.
Bridge]. A Mathematical Recreation [: *Sanders, S.T.* 5:7 (1931) 27-30.
Bridge. Bayes' Formula and a priori Probabilities in the Game of, *Divinsky, N.* 37 (1964) 235-241.
Bridge. Finesse at, *Sanders, S.T.* 6:4 (1932) 17-19.
Bridge Tournament Seating Problem and Latin Squares. A Certain, *Ward, James A.* 29 (1956) 249-253.
Brief Treatment of Analytic Trigonometry. A, *Smith, H.L.* 2:1 (1927) 5-7.
Brocard Geometry. An Extension of, *Sidenblad, Paul.* 47 (1974) 159-161.
Brocard Points. Reflective Geometry of the, *Bailey, D. Moody.* 36 (1963) 162-175.
Brocard's Ellipse. On, *Cavallaro, Vincenzo.* 14 (1940) 445-448.
Buck. Proof of a Conjecture of R.C. and E.F., *Sholander, Marlow.* 24 (1950) 7-10.
Budgets Based on Parabolic Engel Curves. Theory of, *Baker, G.A.* 26 (1952) 67-70.
Buffalo. Tutorial Work in Mathematics at the University of, *Montague, Harriet F.* 24 (1951) 207-208.

Buffon in the Round. *Neuts, Marcel F. and Purdue, P.* 44 (1971) 81-89.
Buffon Needle Problem. A Variation of the, *Duncan, R.L.* 40 (1967) 36-38.
Buffon Needle Problem. On Barbier's Solution of the, *Klamkin, Murray S.* 28 (1955) 135-138.
Buffon's Needle Problem in Probability. A Generalization of, *Funkenbusch, William W.* 24 (1951) 245-248.
Build Up of Current In An Iron Clad Circuit. The, *Merrill, Lynn L.* 14 (1939) 100-102.
Building Triangles with Integers. *Robinson, L.V.* 17 (1943) 239-244.
Bus. Waiting For a, *Sutcliffe, Alan.* 38 (1965) 102-103.
Butterfly Problem. An Extension of the, *Klamkin, Murray S.* 38 (1965) 206-208; *Sequels* 42 (1969) 17-21, 21-23; 46 (1973) 278, 280; 49 (1976) 86-87.
Butterfly Problem. Another Simple Solution of the, *Conrad, Steven R.* 46 (1973) 278-280.
Butterfly Problem--Extensions, Generalizations. The, *Jacobson, William I.* 42 (1969) 17-21.
Butterfly Property. On the, *Chakerian, G. D.; Sallee, G.T. and Klamkin, Murray S.* 42 (1969) 21-23.
Butterfly Theorem. A Double, *Jones, Dixon.* 49 (1976) 86-87.

C

Calculating Commutators in Groups. *Spiegel, Eugene.* 49 (1976) 192-194.
Calculating Machine--Abacus. *Maish, A.M.* 29 (1955) 58.
Calculation of a Complete System of Tensors with the Aid of Symbolic Multiplication. *Robinson, Lewis Bayard.* 31 (1957) 5-14.
Calculation of Planetary Motions. The, *Wollard, Edgar W.* 14 (1940) 179-189.
Calculus. A Curious Function from Elementary, *Sell, William.* 7:5 (1933) 13-15; *Sequel* 7:7 (1933) 29-30.
Calculus]. A Fresh Start [for, *Olds, Edwin G.* 12 (1938) 290-293.
Calculus. A Realistic View of Differential, *Sullivan, Sister Helen.* 24 (1951) 162-165.
Calculus. An Extension of an Elementary Theorem [L'Hôpital's Rule] in, *Reed, Kennard W., Jr.* 42 (1969) 266.
Calculus Analysis]. The Long Jump Miracle of Mexico City [: A, *Brearley, M.N.* 45 (1972) 241-246.
Calculus Fallacy. A, *Miller, K.W.* 41 (1968) 90-91.
Calculus for Know/Don't Know Problems. A, *Austin, A.K.* 49 (1976) 12-14.
Calculus. Fractional, *Ross, Bertram.* 50 (1977) 115-122.
Calculus in the Plane. Duality and Differential, *Hood, Rodney T.* 23 (1950) 235-243.
Calculus. Introduction to Heaviside's, *Johnson, Wm. C., Jr.* 12 (1938) 231-241.
Calculus Looks at the Barometer. *Hatch, Hollis D.* 18 (1943) 127-129.
Calculus [Maximization] Problem. Extra Dividends From a, *Ogilvy, C. Stanley.* 41 (1968) 280-281.
Calculus of Variations. An Elementary Introduction to the, *Hestenes, Magnus R.* 23 (1950) 249-267.
Calculus]. On Certain Useful Functions [in, *Smith, H.L.* 4:6 (1939) 20-22.
Calculus. On exp and log in Elementary, *Lightstone, A.H.* 36 (1963) 17-23.
Calculus. Pythagorean Principle and, *Caners, Leonard.* 28 (1955) 276; *Comments* 29 (1955) 40, 58; 29 (1956) 204-205.
Calculus. Quantification of Greek Variables in, *McKee, Terry A.* 50 (1977) 27-29.
Calculus. Teaching the, *Dragoo, R.C.* 19 (1945) 186-193.
Calculus. The Gist of the, *James, Glenn.* 22 (1948) 29-46.
Calendar. A Geometric Perpetual. *Sholander, Marlow.* 25 (1952) 275-277.
Calendar. Formula for Finding the Day of the Week, for Any Date in the Gregorian, *Hoeck, John.* 25 (1951) 55.
Caley]. Imaginary Orders [Complex, Quaternionic, *Shaw, James Byrnie.* 12 (1937) 63-76.
Canonical Placement of Simplices. *Kenelly, John W. and Sobczyk, Andrew.* 41 (1968) 150-152.
Cantor Sets and Cantor Functions. Some, *Darst, R.B.* 45 (1972) 2-7.
Card Trick. A Finite Sequence and a, *Amir-Moéz, Ali R.* 30 (1957) 25-26.
Card Trick. Limit of a Function and a, *Amir-Moéz, Ali R.* 38 (1965) 191-196.
Cardan-Tartaglia Controversy. Sidelights on the, *Nordgaard, Martin A.* 12 (1938) 327-346.
Cardan's Formulas and Biquadratic Equations. *Chalkley, Roger.* 47 (1974) 8-14.
Cards. On Shuffling, *Wilde, Edwin F. and Tomandl, Daniel A.* 42 (1969) 139-142.
Careers in Military Research. Mathematical, *Odle, John W.* 25 (1952) 159-162.
Carl Friedrich Geiser. [Obituary:], *Emch, Arnold.* 12 (1938) 286-289.
Carlitz's Coefficients of sinh x/sin x. The Coefficients of [the Series] cosh x/cos x and a Note on, *Gandhi, J. M.* 31 (1958) 185-191; *Comment* 32 (1959) 132, 136; *Sequel* 34 (1960) 37-40.

Carpenter's Square. The Angle Ruler, the Marked Ruler and the, *Yates, Robert C.* 15 (1940) 61-73.
Carry-Over [in Education]. *Ault, John W.* 32 (1959) 264.
Cartesian Symbolism. On the Origin of, *Pogorzelski, H.A.* 33 (1960) 184.
Case n = 3, of Fermat's Last Theorem. On the, *Piza, Pedro A.* 28 (1955) 157-158; *Comment* 29 (1956) 205-206.
Casino Checks. Riffling, *Gardner, Martin J. and McMahan, C.A.* 50 (1977) 38-41.
Categorical System of Axioms for the Complex Numbers. A, *Bosch, W. and Krajkiewicz, P.* 43 (1970) 67-70.
Catenary and Tractrix in Non-Euclidean Geometry. *Fulton, Curtis M.* 27 (1953) 79-84.
Cauchy Condition for Functions. A, *Schawe, D.P.* 44 (1971) 159-161.
Cauchy Functional Equation in Elementary Differential Equations. An Application of a, *Reeves, Roy F. and Pursell, Lyle E.* 29 (1956) 272-273.
Cauchy, Hölder, and Minkowski Inequalities from Young's Inequality. An Elementary Derivation of the, *Tolsted, Elmer.* 37 (1964) 2-12.
Cauchy's Distribution. Sprays and, *Wilkins, C.A.* 33 (1960) 261-264.
Cause and Cure of Delinquincy in College Mathematics. The, *James, Glenn.* 11 (1937) 274-278.
Cayley Group Table. Symmetries of the, *O'Neill, John D.* 47 (1974) 146-149.
Cayley-Hamilton Theorem. Triangular Matrices and the, *Barker, George Phillip.* 44 (1971) 34-36.
Cayley-Hamilton Theorem via the Easiest Real Case. The General, *Smith, J. Denmead.* 48 (1975) 232-233.
Census of Nine-Digit Determinants. A, *Trigg, Charles W.* 36 (1963) 153-156.
Centralizers and Normalizers in Hausdorff Groups. *Grant, Douglass L.* 48 (1975) 218; *Comment* 49 (1976) 259.
Centroid. On the, *Court, Nathan Altshiller.* 15 (1941) 271-277.
Centroid Problems. On the Volume of a Class of Truncated Prisms and Some Related, *Klamkin, Murray S.* 41 (1968) 175-181; *Correction* 42 (1969) 23.
Centroid. Systems of Particles with a Common, *Eves, Howard.* 28 (1954) 1-7.
Centroids and Moments of Inertia Simultaneously. Teaching, *Kaltenborn, H.S.* 16 (1942) 299-304.
Certain Bridge Tournament Seating Problem and Latin Squares. A, *Ward, James A.* 29 (1956) 249-253.
Certain Cases of Simple Exact Solutions of Flow Equations in a Compressible Imperfectly Viscous Fluid with Particular Conditions. On, *Krzywoblocki, M. Z.* 22 (1949) 111-123.
Certain Chains. On, *Subramanyam, S.S.* 45 (1972) 65-72.
Certain [Combinatorial] Distributions of Unlike Objects Into Cells. *Abramson, Morton.* 43 (1970) 214-218.
Certain Cube Root. On a, *Carlson, C.S.* 11 (1937) 333.
Certain Deficiencies of College Freshmen in Algebra. On, *Murray, S.B.* 6:3 (1931) 14-15.
Certain Envelopes. Note on, *Foster, Malcolm.* 27 (1954) 268-273.
Certain Expressions Related to Fourier Series. *Dobbie, J.M.* 17 (1943) 285-291.
Certain Geometrical Calculus by Van Der Waerden in Connection with the Elliptic Cubic. A, *Emch, Arnold.* 14 (1940) 439-442.
Certain Integral Arising in Quantum Mechanics. On a, *Buchanan, H.E.* 10 (1936) 247-248.
Certain Limits. On, *Brauer, Alfred.* 18 (1943) 64-66.
Certain Maximal Values. On, *Hurst, T.T.* 6:2 (1931) 15-17.
Certain Non-factorable Polynomials. *Holder, Doyne.* 31 (1957) 80.
Certain Polynomials Associated with the Triangle. On, *Blundon, W.J.* 36 (1963) 247-248.
Certain Problem in Mechanics. On a, *Spiegel, Murray R.* 30 (1956) 94; *Comments* 30 (1957) 215-217, 268; 31 (1958) 158-159.
Certain Problems. *Bruton, Gaston S.* 7:3 (1932) 14-19.
Certain Sequences of Integers Defined by Sieves. On, *Gardiner, Verna; Lazarus, R.; Metropolis, N. and Ulam, S.M.* 29 (1956) 117-122; *Sequel* 31 (1958) 277-280.
Certain Systems of Conics Satisfying Four Conditions. On, *Fettis, Henry E.* 10 (1936) 117-126.
Certain Topics Related to Constructions with Straightedge and Compasses. *Hess, Adrien L.* 29 (1956) 217-221.
Certain Trigonometry Equation. A Note on a, *Kennedy, E.C.* 11 (1937) 332.
Certain Useful Functions [in Calculus]. On, *Smith, H.L.* 4:6 (1939) 20-22.
Ceva. The Affine Theorems of Pasch, Menelaus and, *Abeles, Francine.* 45 (1972) 78-82.
Cevians of a Triangle. On the, *Court, Nathan Altshiller.* 18 (1943) 3-6.
Chain. An Analogue to Clifford's, *Kobayashi, Katsutarô.* 31 (1958) 133-136.
Chain Reaction Process in Number Theory. A, *Botts, Truman.* 40 (1967) 55-65.
Chain. Rings whose Ideals form a, *Hill, E.T.* 47 (1974) 97-98.
Chains. On Certain, *Subramanyam, S.S.* 45 (1972) 65-72.

Change. Making, *Berlekamp, Elwyn R.* 49 (1976) 195-198.
Character of 2 mod p. The Quadratic, *Williams, Kenneth S.* 49 (1976) 89-90.
Characteristic Functions in Statistics. *Kenney, J.F.* 17 (1942) 51-67, 99-114.
Characteristic Vectors. Biorthogonality of, *Christiano, John G. and Wiggin, Albert.* 42 (1969) 133-135.
Characterization of Conditional Probability. A, *Teller, Paul and Fine, Arthur.* 48 (1975) 267-270.
Characterization of Continuous Closed Real Functions. A, *Espelie, M. Solveig and Joseph, James E.* 45 (1972) 200-201.
Characterization of O-Sequences. A, *Brown, J.L., Jr.* 45 (1972) 209-213.
Characterization of Orthogonality. On a, *Al-Salam, Waleed A.* 31 (1957) 41-44.
Characterizing a Family of Complex Polytopes Without Using Complex Coordinates. *Halsey, Eric.* 41 (1968) 273-276.
Characterizing Motions by Unit Distance Invariance. *Bishop, Richard L.* 46 (1973) 148-151.
Chart of Integral Right Triangles. A, *Ross, W. Bruce.* 23 (1949) 110-114.
Charts by Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. Statistical Decision Procedures in Industry. I: Control, *Coleman, Edward P.* (I); *Gold, Ben K.* (II); *Howell, John M.* (III) and *Moan, O.B.* (IV). 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Chebyshev's Theorem. A Note on, *Gioia, Anthony A.* 46 (1973) 95-96.
Chemical Analysis. Linear Equations in a Certain, *Sanders, S.T.* 7:7 (1933) 23-25.
Chess] Problem. Combinations, Successions and the n-Kings [, *Abramson, Morton and Moser, William.* 39 (1966) 269-273.
Chess] Problem. Constructions for the Solution of the m Queens [, *Hoffman, E.J.; Loessi, J.C. and Moore, R.C.* 42 (1969) 66-72.
Chessboard. A Theorem about Primes Proved on a, *Larson, Loren C.* 50 (1977) 69-74.
Chessboards with Dominoes. Covering Deleted, *Singmaster, David.* 48 (1975) 59-66.
Chevilliet's Formula. A Generalization of, *Camp, Chester C.* 11 (1936) 8-13.
Children's Difficulties with Reasoning Problems [Education]. *Roca, Lolita.* 5:1 (1930) 3-11.
China. Mathematics in Japan and, *Colpitts, Julia T.* 9 (1935) 123-129.
Chinese Remainder Theorem. An Abstract-Algebraic Proof of the, *Unger, Leo.* 36 (1963) 119-120.
Chordal Metric. Ptolemy's Inequality and the, *Apostol, Tom M.* 40 (1967) 233-235.
Chords of a Conic. A Note on, *Raiford, T.E.* 13 (1938) 72.
Choreographic Proof of a Theorem on Permutations. *Cunningham, F., Jr.* 43 (1970) 154-155.
Chromatic Bipartite Graphs. On, *Moon, J. W. and Moser, Leo.* 35 (1962) 225-227.
Chromatic Graphs. Disjoint Triangles in, *Moon, J.W.* 39 (1966) 259-261.
Chronology of Pi. The, *Schepler, Herman C.* 23 (1950) 165-170, 216-228, 279-283.
Circle. A Note on an Approximation to the Square of the, *Lowston, Walter H.* 17 (1942) 81-82.
Circle. A Talmudic Approach to the Area of a, *Epstein, Sheldon and Hochberg, Murray.* 50 (1977) 210.
Circle Associate on a Given Point. *Bailey, D. Moody.* 37 (1964) 224-226.
Circle in 3-Dimensional Euclidean Space. Two Parametric Representations of a, *Unger, Leo.* 37 (1964) 100-111.
Circle. Indiana's Squared, *Hallerberg, Arthur E.* 50 (1977) 136-140.
Circle Inequality. A Four, *Sloss, James M.* 37 (1964) 327-330.
Circle is Trivial. Combinatorial Homotopy Theory and a New Proof that the Second Homotopy Group of the, *Gonshor, Harry.* 37 (1964) 298-300.
Circle of an Ellipse. A Direct Derivation of the Equation of the Director, *Rajagopal, A.K.* 30 (1957) 158-159; *Comment* 31 (1958) 157.
Circle. Packing of 14, 16, 17 and 20 Circles in a, *Goldberg, Michael.* 44 (1971) 134-139.
Circle Problems in Modern Geometry. Three-, *Smith, C.D.* 14 (1940) 299-307.
Circle Product. Invariance of, *Amir-Moéz, Ali R.* 33 (1959) 35-38.
Circle Through Three Given Points. *Klamkin, Murray S.* 44 (1971) 279-282.
Circles. A Note on Line Segments Connected with a Triangle and Its Related, *Lewis, F.A.* 21 (1947) 42-43.
Circles. An Invariant Relation in Chains of Tangent, *Michiwaki, Yoshimasa; Ōyama, Makoto and Hamada, Toshio.* 48 (1975) 80-87.
Circles and Lines. Polynomial Images of, *Cargo, Gerald T. and Schneider, W.J.* 40 (1967) 1-4.
Circles. Applications of Complex Numbers to Geometry of, *Shaw, Allen A.* 14 (1939) 26-36.
Circles. Four Equal Tritangent, *Bankoff, Leon.* 37 (1964) 48.
Circles. Harmonic Sets and, *Larsson, Robert D.* 32 (1958) 35-37.
Circles. Hyperbolic Functions in Concen-

tric, *Roby, Marcus A., Sr.* 15 (1941) 401-402.
Circles in a Square. On the Packing of Ten Equal, *Schaer, Jonathan.* 44 (1971) 139-140.
Circles in a Square. The Packing of Equal, *Goldberg, Michael.* 43 (1970) 24-30.
Circles. Inner Product of Two, *Amir-Moéz, Ali R.* 29 (1956) 269-270.
Circles Inscribed in Two Intersecting Circles. *Bankoff, Leon.* 38 (1965) 43.
Circles of Archimedes Really Twins? Are the Twin, *Bankoff, Leon.* 47 (1974) 214-218.
Circles of Curvature and Related Extreme Problems. Constructions for Certain, *Freitag, Herta Taussig and Freitag, Arthur H.* 40 (1967) 145-150.
Circles. On a System of, *Crain, Karleton W.* 10 (1936) 302-303.
Circles. Radical Axis of Two, *Bailey, D. Moody.* 38 (1965) 44-45.
Circles. Related, *Bankoff, Leon.* 35 (1962) 90.
Circles. Six Equal Inscribed, *Bankoff, Leon.* 36 (1963) 65-66.
Circles Within a Circle. Dense Packing of Equal, *Reis, George E.* 48 (1975) 33-37.
Circuit. The Build Up of Current In An Iron Clad, *Merrill, Lynn L.* 14 (1939) 100-102.
Circuits: A Hierarchy of Examples. Hamiltonian, *Smith, James F. and Quinn, Michael J.* 50 (1977) 35-36.
Circuits. A Mathematical Theory of Switching, *Nemitz, William and Reeves, Roy F.* 33 (1959) 1-6.
Circuits and Things Synthesized by Number Theory. Resistance, *Benson, Arne.* 34 (1961) 125-130; *Comment* 34 (1961) 233.
Circulant Matrices and Algebraic Equations. *Chalkley, Roger.* 48 (1975) 73-80.
Circular and Hyperbolic Functions. Notes on, *McCulley, William S.* 31 (1957) 33-38.
Circular and Hyperbolic Functions. The, *Smith, H.L.* 5:4 (1930) 14-19.
Circular Arc Figures. *Ford, Lester R.* 10 (1936) 290-293.
Circular Functions, II, and lim (sin x)/x. A New Approach to, *Robison, Gerson B.* 41 (1968) 66-70.
Circular Functions. On the Inverse, *Smith, H.L.* 4:3 (1929) 14-19.
Circular Function(s). The, *Eberlein, W.F.* 39 (1966) 197-201; *Sequel* 41 (1968) 66-70.
Circular Horn Triangle. The Geometry of the, *Kasner, Edward and Kalish, Aida.* 18 (1944) 299-304.
Circular P rmutations. On a Formula for, *Grant, Harold Sinclair.* 23 (1950) 133-136.
Circumcircle. Some Radical Axes Associated with the, *Bailey, D. Moody.* 38 (1965) 199-205, 276-283; 39 (1966) 9-17.
Circumferance of a Circle. Graphical Construction to Find Approximate Length of the, *Cicero-Pienkowski, Jerzy.* 30 (1956) 91-92.
Circumradius of a Simplex. The, *Ivanoff, Vladimir F.* 43 (1970) 71-72.
Circumscriptible Cyclic Quadrilaterals. A Note on, *Carlitz, Leonard.* 38 (1965) 33-35.
Citizenship. Mathematical Thinking Aids in Intelligent, *Kenny, Alice Patricia.* 27 (1953) 91.
Class Notes on Series Related to the Harmonic Series. *Demos, Miltiades S.* 46 (1973) 40-41.
Class of Curious Loci. Notes on a, *Smith, H.L.* 3:5 (1929) 23-24.
Class of Functions Having Elementary Integrals for Arc Length. A, *Dotson, W. G., Jr. and Savage, R.G.* 43 (1970) 42-43.
Classes of Geometric Configurations. A Transformation for, *Dilley, Norman R.; Green, Thomas M. and Hamberg, Charles.* 42 (1969) 136-139.
Classic Roadblock in Efforts to Prove Fermat's Last Theorem. A, *James, Glenn.* 32 (1958) 101-102.
Classical Ruin Problem with Equal Initial Fortunes. The, *Samuels, S.M.* 48 (1975) 286-288.
Classification of Collineations in the Plane. On the, *Lasley, J.W., Jr.* 19 (1944) 11-20.
Classroom Discussion of a Question on Infinite Series. *Simons, H.A.* 22 (1948) 53.
Classroom Note on [the Euler Expression for] e^{ia}. *Pritchett, J.* 37 (1964) 82.
Classroom Presentation of the Definite Integral. A, *Manheim, Jerome H.* 34 (1961) 157-158.
Classroom Speculations on a Parachute Problem. *Osborn, Roger.* 27 (1954) 265-267.
Clausen Theorem. The Staudt-, *Carlitz, Leonard.* 34 (1961) 131-146.
Clifford's Chain. An Analogue to, *Kobayashi, Katsutarô.* 31 (1958) 133-136.
Clocks. A Geometry of, *Woodbridge, Margaret Young.* 22 (1949) 129-137.
Closed Curves. An "Obvious" But Useful Theorem About, *Schaer, Jonathan.* 45 (1972) 154-155.
Closed Curves. Minimal Covers for, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 55-61.
Closed Form. Evaluation of Certain Classes of Infinite Numerical Series in, *Fain, Bill W.* 26 (1953) 121-126.

Closed. Spaces in which Compact Sets are, *Joseph, James E.* 49 (1976) 90.
Closed Surface. On Wrapping of a, *Glauz, R.D.* 42 (1969) 27-28.
Closest Unitary, Orthogonal and Hermitian Operators to a Given Operator. *Keller, Joseph B.* 48 (1975) 192-197.
Closure and Complementation Problem. An Extension of the Kuratowski, *Chapman, Thomas A.* 35 (1962) 31-35.
Closure Axioms. The Kuratowski, *Ahmad, Shair.* 37 (1964) 296-297.
Club. A High School Mathematics, *Garrett, Hattie C.* 5:7 (1931) 6-9.
Club. A Mathematics, *Smith, C.D.* 5:3 (1930) 5-6.
Cocker. Arithmetic According to, *Sleight, E.R.* 17 (1943) 248-257.
Coefficients: *see also* Binomial.
Coefficient Functions for the Second Degree Equation in Two Variables. A Complete Set of, *Stark, J.M.* 37 (1964) 253-261.
Coefficient of the Binomial Expansion to Negative and Fractional Powers, in Tri-Factorial Form. On Writing the General Term, *Funkenbusch, William W.* 17 (1943) 308-310.
Coefficients. Fermat, *Piza, Pedro A.* 27 (1954) 141-146.
Coefficients. Multinomial, *Abramson, Morton.* 41 (1968) 199-205.
Coefficients of Cyclotomic Polynomials. A Note on, *Habermehl, Helen; Richardson, Sharon and Szwajkos, Mary Ann.* 37 (1964) 183-185.
Coefficients of [the Series] cosh x/cos x and a Note on Carlitz's Coefficients of sinh x/sin x. The, *Gandhi, J.M.* 31 (1958) 185-191; *Comment* 32 (1959) 132, 136; *Sequel* 34 (1960) 37-40.
Coefficients of [the Series] cosh x/cos x. Note on the, *Carlitz, Leonard.* 32 (1959) 132, 136.
Coefficients of [the Series] cosh x/cos x. On the, *Krick, M.S.* 34 (1960) 37-40.
Coefficients of [the Series] sinh x/sin x. The, *Carlitz, Leonard.* 29 (1956) 193-197; *Sequels* 31 (1958) 185-191; 32 (1959) 132, 136.
Coefficients. On the Trinomial, *Keeney, R.L.* 42 (1969) 210-213.
Cofactorial Matrices. *Bucher, R. and Godbole, S.* 42 (1969) 142-145.
Coin Problems. Counterfeit, *Manvel, Bennet.* 50 (1977) 90-92.
Coin Strings [and Permutations]. *Gombert, Jan M.* 42 (1969) 244-247.
Coin Tossing, Probability, and the Weierstrass Approximation Theorem. *Kuller, Robert G.* 37 (1964) 262-265.
Colburn and His Influence on Arithmetic in the United States. Warren, *Richeson, A.W.* 10 (1935) 73-79.
Colgate and Syracuse. The Mathematics Meeting of Hamilton, *Aude, H.T.R.* 10 (1935) 100-101.
College Entrance. Ideal Preparation in Mathematics for, *Seidlin, Joseph.* 26 (1952) 89-94.
College Freshmen in Algebra. On Certain Deficiencies of, *Murray, S.B.* 6:3 (1931) 14-15.
College Freshmen in Mathematics. The Needs of, *Shirley, Ernest.* 4:3 (1929) 11-14.
College Graduates. Opportunities for Mathematically Trained, *Sokolnikoff, I.S.* 21 (1947) 102-105.
College Mathematics. A Method of Measuring Effectiveness in Teaching, *Hassler, J.O.* 19 (1944) 73-77.
College Mathematics. Educational Interests of Teachers of, *Georges, J.S.* 16 (1941) 89-90.
College Mathematics. High School and, *O'Quinn, R.L.* 5:6 (1931) 6-11.
College Mathematics. Improving the Teaching of, *Beenken, May M.* 8 (1934) 97-103.
College. Mathematics in the Liberal Arts, *Wright, Harvey A.* 9 (1935) 95-99.
College Mathematics. Remedial Reading in, *O'Toole, A.L.* 14 (1940) 329-344.
College Mathematics. The Cause and Cure of Delinquincy in, *James, Glenn.* 11 (1937) 274-278.
College Students. Mathematics as a Field of Specialization for, *Zant, James H.* 19 (1945) 247-253.
College Teacher on Mathematics in the High School. Reflections of a, *Langer, Rudolph E.* 10 (1935) 35-43.
College Training Detachment (Air Crew). Teaching Mathematics to the A.A.F., *Zant, James H.* 18 (1944) 234-242.
Colleges. Coordinating the Teaching of Mathematics in High Schools and, *Gunder, Dwight F.* 15 (1941) 248-250.
Colleges Really 'College Algebra'? Is the Algebra Taught in, *Willerding, Margaret F.* 27 (1954) 201-203.
Collinear Points Into Three Other Collinear Points. Note on the Projection of Three, *Wylie, C.R., Jr.* 13 (1939) 278-280.
Collinear Points. Sylvester's Problem on, *Crowe, D.W. and McKee, Terry A.* 41 (1968) 30-34.
Collineations in the Plane. On the Classification of, *Lasley, J.W., Jr.* 19 (1944) 11-20.
Cologarithms. A Note on, *Selby, Sam.* 28 (1955) 196.
Color Was the Bear? What, *Schwartz, Benjamin L.* 34 (1960) 1-4.
Colors. Group Theory and, *Amir-Moéz, Ali R.* 32 (1959) 161-162.
Column Rank of a Matrix. Row Rank and, *Andrea, Stephen A. and Wong, Edward T.* 34 (1960) 33-34.

Combinations and Successions. *Church, C. A., Jr.* 41 (1968) 123-128.
Combinations of] Colored Cubes. The 23 [, *Gridgeman, N.T.* 44 (1971) 243-252.
Combinations, Successions and the n-Kings [Chess] Problem. *Abramson, Morton and Moser, William.* 39 (1966) 269-273.
Combinatorial Derivations of Two Identities. *Steinberg, Donald A.* 31 (1958) 207-209.
Combinatorial] Distributions of Unlike Objects Into Cells. Certain [, *Abramson, Morton.* 43 (1970) 214-218.
Combinatorial Homotopy Theory and a New Proof that the Second Homotopy Group of the Circle is Trivial. *Gonshor, Harry.* 37 (1964) 298-300.
Combinatorial Identity. A Democratic Proof of a, *Flanders, Harley.* 44 (1971) 11.
Combinatorial Identity. A New Proof of a, *Shipman, David C.* 43 (1970) 162-163.
Combinatorial Identity. Note on a, *Hietala, H.J. and Winter, B.B.* 38 (1965) 149-151.
Combinatorial Problem Associated with a Family of Combination Locks. A, *Simmons, G.J.* 37 (1964) 127-132.
Combinatorial Problems in Set-Theoretic Form. *Palmer, Edgar M.* 42 (1969) 32-37.
Combinatorial Problems of Arithmetic. Some, *Klamkin, Murray S. and Newman, D.J.* 42 (1969) 53-56.
Combinatorial Proof. On a, *Verma, Sadanand.* 41 (1968) 136-138.
Combinatorial Proof that [the Sum] $\sum k^3 = (\sum k)^2$. A, *Stein, Robert G.* 44 (1971) 161-162.
Combinatorial Topology of Surfaces. *James, Robert C.* 29 (1955) 1-39.
Comment on "A Magic Pentagram." *Cohen, Daniel I.A.* 37 (1964) 49-50.
Comment on "A Speedy Solution of the Cubic." *Greenwood, Robert E.* 21 (1948) 265-266.
Comment on the Paper "Some Probability Distributions and Their Associated Structures." *Carlitz, Leonard.* 37 (1964) 51-52.
Comment on Two Papers [Escalator and Kummer Numbers] by P.A. Piza. *Becker, H.W.* 22 (1949) 213-214.
Comment to Problems and Questions [about a Prime Generating Function]. A Note on a, *Christilles, William Edward.* 35 (1962) 47-48.
Comments About Definitions. Some, *Bruyr, Donald L.* 43 (1970) 57-64.
Comments on a Trajectory-Indicating Device. *Brenner, J.L.* 44 (1971) 92-94.
Comments on and additions to H.V. Craig's paper 'On Extensors and the Lagrangian Equations of Motion.' *Horton, C.W.* 23 (1949) 31-32.
Comments on the Role of the Axiom of Choice in the Development of Abstract Set Theory. Some, *Zlot, William Leonard.* 32 (1959) 115-122.
Comments on the Secondary Mathematics Situation. Some, *Sisam, C.H.* 10 (1935) 25-27.
Common Errors in Algebra. Some, *Webber, W. Paul.* 4:1 (1929) 9-12.
Common Misapplication of the Axiom of Finite Induction. A, *Andrew, David R.* 35 (1962) 289.
Commutative Domains. Ideals in, *Sinha, I. and Srivastava, J.B.* 44 (1971) 124-127.
Commutator Subgroup. A Representation of the, *Yff, Peter.* 29 (1956) 161.
Commutators in Groups. Calculating, *Spiegel, Eugene.* 49 (1976) 192-194.
Compact and Connected Spaces. *Johnsonbaugh, Richard.* 50 (1977) 24-25.
Compact Graph Theorem. A, *Kim, Moon.* 47 (1974) 99.
Compact Metric Spaces. On a Fixed Point Theorem for, *Bennett, D.G. and Fisher, B.* 47 (1974) 40-41; *Comment* 48 (1975) 48.
Compact Sets are Closed. Spaces in which, *Joseph, James E.* 49 (1976) 90.
Compact Subsets of the Sorgenfrey Line. *Espelie, M. Solveig and Joseph, James E.* 49 (1976) 250-251.
Compactness in the Weak Topology. *Brace, John Wells.* 28 (1955) 125-134.
Compactness Theorem in Mathematical Logic. The, *Rubin, Jean E.* 46 (1973) 261-265.
Comparison of Methods for Finding the Interest Rate in Installment Payment Plans. A, *Stelson, H.E.* 11 (1937) 172-176.
Comparison of One, Three, and Five-Year Fire Insurance Policies. *Nichols, Irby C.* 16 (1942) 338-340.
Comparison of Simple and Compound Interest. A, *Stelson, H.E.* 19 (1945) 336-340.
Comparison of the Archimedean and Completeness Properties. A, *Robertson, Jack M.* 43 (1970) 92-93.
Comparison of the United States Rule With the Merchant's Rule for Computing the Maturity Value of a Note on Which Partial Payments Have Been Made. A, *Barnett, Joseph, Jr.* 23 (1949) 24-26.
Comparison of Two Methods of Teaching Pupils to Apply the Mechanics of Arithmetic to the Solution of Problems. *Will, Alma.* 5:2 (1930) 3-10.
Compass. A Method for the Point by Point Construction of Central Conics by Ruler and, *Harper, Floyd S.* 21 (1947) 55-57.
Compass Mapping Problem Associated with

the Equilateral Triangle. A Ruler and, *Hinrichsen, J.J.L.* 14 (1939) 141-143.
Compasses. Certain Topics Related to Constructions with Straightedge and, *Hess, Adrien L.* 29 (1956) 217-221.
Competition. N Producers in Cooperation and, *Aucoin, A.A.* 11 (1937) 354-360.
Competition. William B. Orange Mathematics Prize, *Anonymous.* 29 (1955) 77-82.
Competitions. A Nonparametric Model for Series [Sports], *Vargo, Louis G.* 50 (1977) 25-27.
Complementary Operations. Functional Equations Defining the, *Sanders, S.T.* 12 (1937) 115-117.
Complementary Problem of Nonplanar Graphs. A, *Harary, Frank.* 35 (1962) 301-303.
Complementation Problem. An Extension of the Kuratowski Closure and, *Chapman, Thomas A.* 35 (1962) 31-35.
Complementing Sets. Infinite, *Makowski, Andrzej.* 45 (1972) 162-163.
Complementing Sets of Nonnegative Integers. On, *Vaidya, A.M.* 39 (1966) 43-44; *Comment* 39 (1966) 300-301.
Complements to an Inversion Formula. *Widder, D.V.* 46 (1973) 1-7.
Complete Approximate Solutions of the [Trigonometric] Equation x = tan x. *Frankel, Sidney.* 11 (1937) 177-182.
Complete Independence of the Axioms of a Seminatural System. On the, *Stern, Samuel T.* 39 (1966) 232-236; *Sequels* 41 (1968) 88-89; 43 (1970) 93-94.
Complete Pentagon. Properties of the, *Bunch, William H.* 40 (1967) 132-140.
Complete Quadrangle Inscribed in a Conic. On a, *Cardoso, Jayme Machado.* 36 (1963) 190-191.
Complete Quadrilateral. The, *Fettis, Henry E.* 22 (1948) 19-22.
Complete Residue Systems in the Gaussian Integers. *Jordan, J.H. and Potratz, C. J.* 38 (1965) 1-12.
Complete Sequences. Integer Representations and, *Brown, J.L., Jr.* 49 (1976) 30-32.
Complete Set of Coefficient Functions for the Second Degree Equation in Two Variables. A, *Stark, J.M.* 37 (1964) 253-261.
Completely Independent Axioms for a Seminatural System. *Jacobson, Richard A.* 41 (1968) 88-89; *Sequel* 43 (1970) 93-94.
Completeness and Semicompleteness for Integer Sequences. On the Equivalence of, *Brown, J.L., Jr.* 36 (1963) 224-226.
Completeness of the Real Numbers. *Goffman, Casper.* 47 (1974) 1-8.
Completeness Properties. A Comparison of the Archimedean and, *Robertson, Jack M.* 43 (1970) 92-93.
Completion of a Metric Space. *Sell, George R.* 44 (1971) 182-184.
Completion of Seminormed Spaces and the Daniell Process of Extending an Integral. *Lamadrid, Jesús Gil de.* 33 (1960) 199-210.
Complex Domain. The Derivative of a Polynomial on Various Arcs of the, *Sewell, W.E.* 12 (1938) 167-170.
Complex Functions and their Graphs. Semi-, *Karst, Otto J.* 35 (1962) 282-288.
Complex Functions. Graphs of Semi-, *Schaefer, Paul.* 37 (1964) 273.
Complex Graphs. *Bergdal, Ed.* 24 (1951) 195-202.
Complex-like Rings]. Functions of a Dual or Duo Variable [Analysis over, *Deakin, Michael A.B.* 39 (1966) 215-219.
Complex Number Algebra as a Simple Case of Heaviside Operational Calculus. *Moore, Douglas H.* 43 (1970) 269-272.
Complex Number Field. On the Automorphisms of the, *Soundararajan, T.* 40 (1967) 213.
Complex Number in Partial Fractions. The, *Gwinner, Harry.* 2:4 (1928) 16.
Complex Numbers. A Categorical System of Axioms for the, *Bosch, W. Krajkiewicz, P.* 43 (1970) 67-70.
Complex Numbers. Automorphisms of the, *Yale, Paul B.* 39 (1966) 135-141; *Sequel* 40 (1967) 213.
Complex Numbers. Introduction to, *Diamond, Louis E.* 30 (1957) 233-249.
Complex Numbers. On the Use of, *Webber, W. Paul.* 4:4 (1929) 15-16.
Complex Numbers. Plane Geometry and, *Blake, Robert G.* 35 (1962) 239-242.
Complex Numbers. Sets of, *Daykin, D.E. and Wilansky, Albert.* 47 (1974) 228-229.
Complex Numbers. Solving Differential Equations without, *Pascual, Michael J.* 31 (1957) 93-94.
Complex Numbers to Geometry of Circles. Applications of, *Shaw, Allen A.* 14 (1939) 26-36.
Complex Plane. Some Remarks on the Logarithmic Function in the, *Schoenfeld, Lowell,* 32 (1959) 189-202.
Complex Polynomials Having Rolle's Property and the Mean Value Property for Derivatives. A Note on, *Dotson, W.G., Jr.* 41 (1968) 140-144.
Complex Quantities in the First Course in Differential Equations. *Hamilton, Hugh J.* 29 (1955) 83-88.
Complex, Quaternionic, Caley]. Imaginary Orders [, *Shaw, James Byrnie.* 12 (1937) 63-76.
Complex Roots of Quadratics, Cubics and Quartics. Graphical Solutions for, *Yanosik, George A.* 17 (1943) 147-150.
Complex Variable. A New Approach to Integration for Functions of a, *Trahan, Donald H.* 38 (1965) 132-140.
Complex Variable. Remarks on the Inverse Trigonometric and Hyperbolic Functions

of a, *Pennisi, Louis L. and Sjoblom, L.* 33 (1959) 39-42.
Complex Variable Theory. *Beckenbach, Edwin F.* 25 (1951) 7-28.
Complex Variables and Applications. A Note on a Theorem in, *Romer, Eugene M.* 35 (1962) 173-174.
Complex Variables and Line-Coordinates. *Kittappa, R.* 41 (1968) 269-272.
Complexes. Finite Surfaces: A Study of Finite 2-, *Whittlesey, E.F.* 34 (1960) 11-22, 67-80.
Composite Integers. A Note on Consecutive, *Ecklund, E.F., Jr. and Eggleton, Roger B.* 48 (1975) 277-281.
Composite Numbers. A Fibonacci-Like Sequence of, *Graham, R.L.* 37 (1964) 322-324.
Compositions. Tree of, *Gabelman, Irving J.* 34 (1960) 95-96.
Compound Interest. *Garver, Raymond.* 7:6 (1933) 3-8.
Compressible Fluid Flow. Discontinuities in, *Coburn, N.* 27 (1954) 245-264.
Computation as an Aid in Aeronautical Engineering. Automatic, *Lowe, John.* 25 (1951) 37-42.
Computation of Constrained Plane Sets. *Lohman, Robert H. and Morrison, Terry J.* 50 (1977) 201-205.
Computation of the Simple Interest Rate in Installment Purchases. *Stelson, H. E.* 9 (1935) 135-138.
Computation. The Growth of Modern Methods of, *Buchanan, H.E.* 2:4 (1928) 6-11.
Computation with Approximate Numbers. A Note on, *Perry, N.C. and Morelock, J. C.* 31 (1958) 155-156.
Computational Savings in Routine Comparisons of the Means of Correlated Observations. *Baker, G.A.* 15 (1941) 399-400.
Computations Involving More Than one Operation. Probability Functions for, *Locker, John L. and Perry, N.C.* 35 (1962) 87-89.
Computer. An Old Time, *Ransom, William R.* 27 (1954) 205-207.
Computer and Basic Statistics: An Example. The, *Henschel, Donald E. and Wadycki, Walter J.* 46 (1973) 192-198.
Computer Graphing of Surfaces. Inexpensive, *Smith, David A.* 50 (1977) 143-147.
Computers. Ancient Algorithms Adapted to Modern, *Kovach, Ladis D.* 37 (1964) 159-165.
Computer's Challenge to Education. The, *Hilberry, Clarence B.* 30 (1957) 149-153.
Computers in Group Theory. *Gallian, Joseph A.* 49 (1976) 69-73; *Comment* 50 (1977) 56.
Concept--Infinity--Aborning. The, *James, Glenn.* 28 (1954) 64.
Concepts of Elementary Topology. Some, *Hall, Dick Wick.* 22 (1949) 267-274.
Concerning a Certain Web of Conics. *Dorwart, Harold L.* 16 (1941) 59-61.
Concerning Diagrams for Determinants. *Gould, H.W.* 36 (1963) 125-126.
Concerning Envelopes of Certain Trigonometric Polynomials. *Whiteman, Russell A.* 38 (1965) 19-22.
Concerning Graphical Algebra. *Maddox, A. C.* 3:1 (1928) 13-16.
Concerning Homogeneous Polynomials. A Note, *Morelock, J.C. and Perry, N.C.* 31 (1957) 75-79.
Concerning Preparedness for College Algebra at the University of South Carolina. *Coleman, J. Bruce.* 9 (1934) 67-68.
Concerning the Base of the Natural System of Logarithms. *Richert, D.H.* 10 (1936) 205-208.
Concerning the Definition of a Field. A Remark, *Lightstone, A.H.* 37 (1964) 12-13; *Sequels* 38 (1965) 94; 39 (1966) 161-162.
Concerning the Distribution of the Mean of r Independent Chance Variables When Each Is Subject to the Frequency Law $(\Gamma(p+q)/\Gamma(p)\Gamma(q))x^{p-1}(1-x)^{q-1}$. *Baten, William Dowell.* 13 (1939) 357-361.
Concerning the Factorization of a Certain Symmetric Determinant of Order n. *Moritz, R.F.* 4:4 (1929) 9-11.
Concerning the Jordan Normal Form [of a Matrix]. *Sinkhorn, Richard.* 41 (1968) 91-93.
Concerning the Parabola of Surety by R. F. Graesser in V. 27, No. 4. *Russell, Dennis C.* 28 (1954) 52-54.
Concerning the Teaching of the Linear Equation. *Richert, D.H.* 11 (1937) 382-384.
Concerning Two Construction Problems in Geometry. Note, *Tan, Kaidy.* 38 (1965) 222-228.
Concerning Upper and Lower Bounds of the Roots of a Real Algebraic Equation. *Kennedy, E.C.* 14 (1939) 76-80.
Conditional Distributions. An Inequality for, *Johnson, B.R.* 47 (1974) 281-283.
Conditional Expectation of the Duration in the Classical Ruin Problem. *Stern, Frederick.* 48 (1975) 200-203.
Conditional Fractional Equations in a Field, Involving One Unknown. On, *Vandiver, H.S.* 32 (1959) 173-176.
Conditional Probability. A Characterization of, *Teller, Paul and Fine, Arthur.* 48 (1975) 267-270.
Conditions Implying Continuity of Real-Valued Functions. On, *Dickman, R.F., Jr.* 45 (1972) 201-204.
Cone. Foci of the Conics on a, *Miller, Robert C., Jr.* 30 (1957) 193-204.
Cone into a Cocked Hat. Knocking a, *Lloyd, Daniel B.* 31 (1958) 201-204.
Cone. Some Old Slants and a New Twist to

the, *Lloyd, Daniel B.* 34 (1961) 293-296; *Comment* 36 (1963) 67-68.
Cones and the Decomposition of Functionals. *Pierce, R.* 24 (1951) 117-122.
Cones. Sections of n-Dimensional Spherical, *Keyton, Nancy.* 42 (1969) 80-83.
Configuration. A Hexagonal, *Trigg, Charles W.* 35 (1962) 70.
Configuration Associated with a Tetrahedron. A, *Peters, J.W.* 14 (1939) 67-75.
Configurations of the Plane Under Certain Groups. Basic, *Steele, M. Philip, Sr. and McBrien, V.O.* 23 (1949) 5-14.
Conformal and Equilong Geometries. General Comparison of, *De Cicco, John.* 16 (1942) 275-279.
Conformal Linear Transformations. *Amir-Moéz, Ali R.* 40 (1967) 268-270.
Conformal Mapping. Regions and their "Patterns" in, *Miser, Hugh J.* 16 (1942) 333-337.
Conformal Transformation Charts Used by Electrical Engineers. *Mathis, H.F.* 36 (1963) 25-30.
Confusion Rings [Satire]. *Matthews, G.* 33 (1960) 282.
Congress] Under the Integral Sign. Oslo [, *Dunnington, G. Waldo.* 11 (1936) 85-94.
Congruence. *Dimmick, Edgar L.* 28 (1954) 41-43.
Congruence. A Numerical, *Trigg, Charles W.* 34 (1961) 358.
Congruence. Consonance and, *Valentine, Charles W.* 35 (1962) 219-223.
Congruence Methods as Applied to Diophantine Analysis. *Vandiver, H.S.* 21 (1948) 185-192.
Congruence, Modulo M. Some Elementary Properties of the Relation, *Diamond, Louis E.* 28 (1955) 213-220; *Comment* 29 (1956) 206-207.
Congruence of Ternary Quadratic Forms. On the Rational, *Muwafi, Amin.* 37 (1964) 185-187.
Congruence-Preserving Mappings. *Townsend, Carl G.* 43 (1970) 37-38.
Congruence Properties of Certain Restricted Partitions. *Thanigasalam, K.* 47 (1974) 154-156.
Congruence Properties of Certain Restricted Partitions. A Note on, *Hickerson, Dean R.* 48 (1975) 102.
Congruence Properties of Legendre Polynomials. On, *Chatterjea, S.K.* 34 (1961) 329-336; *Correction* 35 (1962) 72.
Congruence Properties of the Legendre Polynomials. Some, *Carlitz, Leonard.* 34 (1961) 387-390.
Congruence $r^x \equiv x \pmod{p}$. A Generalization of the, *Osborn, Roger.* 34 (1961) 349-351.
Congruence $x^m = r \pmod{n}$. Number of Solutions of the, *Alonso, James.* 46 (1973) 215-217.
Congruences. Binomial, *Starke, Emory P.* 13 (1939) 163-170.
Congruences. Covering Sets of, *Billik, Martin and Edgar, Hugh M.* 46 (1973) 265-270.
Congruences. Evaluation of Determinants by, *Valyocsik, Ernest W.* 34 (1961) 218-220.
Congruences for Binomial Coefficients. Bracket Function, *Carlitz, Leonard and Gould, H.W.* 37 (1964) 91-93.
Congruences of the Fibonacci Numbers Modulo a Prime P. Some, *Hoggatt, Verner E., Jr. and Bicknell, Marjorie.* 47 (1974) 210-214.
Congruences with Practical Applications. Arithmetical, *Law, Carol.* 31 (1958) 221-227.
Congruent Triangles. Almost, *Jones, Robert T. and Peterson, Bruce B.* 47 (1974) 180-189; *Comment* 48 (1975) 177.
Conic. A Note on Chords of a, *Raiford, T.E.* 13 (1938) 72.
Conic Associated with a Complex Quadrangle. On the Nine Point, *Regan, Francis and Wilke, R.L.* 44 (1971) 261-266.
Conic Construction. Some Remarks on Maclaurin's, *Wylie, C.R., Jr.* 41 (1968) 234-242.
Conic Functions. The, *Capecelatro, Achille.* 15 (1941) 303-314.
Conic into Itself. Transformations of a, *Lundberg, G.H.* 32 (1958) 5-17.
Conic. On a Complete Quadrangle Inscribed in a, *Cardoso, Jayme Machado.* 36 (1963) 190-191.
Conic. On the Discriminant of a, *Bell, Clifford.* 9 (1935) 142.
Conic. On the General Definition of a, *Boldyreff, Alexander W. and Hohn, Franz E.* 17 (1942) 31-37.
Conic Powers of Point Sets. *Maley, C.E.* 38 (1965) 152-158.
Conic Section Orbits by Elementary Mathematics. A Study of, *Coffman, Raphael T.* 36 (1963) 271-280.
Conic Sections by Vector Methods. *Johnson, Arnold.* 38 (1965) 262-266.
Conic Sections. Early Sundials and the Discovery of the, *Dolan, W.W.* 45 (1972) 8-12.
Conic Sections in the Elliptic Plane. *Goodner, Dwight B.* 34 (1960) 81-94.
Conic Sections. Use Of Matrices In Teaching, *Amir-Moéz, Ali R.* 33 (1960) 145-156.
Conic. Teaching the, *Smith, C.D.* 17 (1942) 79-80.
Conic. The Trigonometry Based on a Central, *Smith, H.L.* 5:7 (1931) 30-33; 9 (1934) 69-72.
Conical Roulettes. *Johnson, R.P.* 17 (1943) 202-211.
Conics by Ruler and Compass. A Method for the Point by Point Construction of Central, *Harper, Floyd S.* 21 (1947) 55-57.

Conics. Concerning a Certain Web of, *Dorwart, Harold L.* 16 (1941) 59-61.
Conics in Airplane Design. The Use of, *Adams, L.J.* 25 (1952) 195-202.
Conics. Inversion with Respect to the Central, *Childress, Noel A.* 38 (1965) 147-149.
Conics. Note on Parametric Equations of Certain Degenerate, *Smith, H.L.* 3:6 (1929) 21-22.
Conics of Physical Systems of Curves. The Osculating, *Kasner, Edward and DeCicco, John.* 25 (1952) 117-124.
Conics on a Cone. Foci of the, *Miller, Robert C., Jr.* 30 (1957) 193-204.
Conics Satisfying Four Conditions. On Certain Systems of, *Fettis, Henry E.* 10 (1936) 117-126.
Conics. The "Reflection Property" of the, *Coffman, Raphael T. and Ogilvy, S.C.* 36 (1963) 11-12.
Conjecture. A Factorial, *Tepper, Myron D.* 38 (1965) 303-304; *Sequel* 38 (1965) 304-305.
Conjecture of Golomb. A Partial Solution to a[n Array], *Cohen, Martin J.* 38 (1965) 95.
Conjecture of Murphy, II [on Primes]. On a, *Makowski, Andrzej.* 35 (1962) 281.
Conjecture. Proof of Tepper's Factorial, *Long, Calvin T.* 38 (1965) 304-305.
Conjugate Diameters and the Special Theory of Relativity. *Wrede, Robert C.* 42 (1969) 227-232.
Conjugate Spaces. A Note on, *Steiner, Gilbert and Bronson, Richard.* 46 (1973) 158.
Connected Region. Line Integrals in a Multiply, *Brown, Arthur B.* 34 (1961) 230-232.
Connected Spaces. Compact and, *Johnsonbaugh, Richard.* 50 (1977) 24-25.
Connectedness [of Graphs]. A Sufficient Condition for n-Short-, *Hedman, Bruce.* 47 (1974) 156-157.
Connection Between Two Theorems in the Theory of Riemann-Stieltjes Integration. A, *Cargo, Gerald T.* 39 (1966) 202-203.
Connection of Block Designs with Finite Bolyai-Lobachevsky Planes. The, *Spoar, G.* 46 (1973) 101-102.
Connectivity of Graphs. On the Transpose-, *Kelly, Paul J. and Merriell, David.* 32 (1958) 1-3.
Consecutive Composite Integers. A Note on, *Ecklund, E.F., Jr. and Eggleton, Roger B.* 48 (1975) 277-281.
Consecutive Integers Having Equal Sums of Squares. *Vigder, J.S.* 38 (1965) 35-42.
Consecutive Integers Whose Sum of Squares is a Perfect Square. *Alfred, Brother U.* 37 (1964) 19-32; *Sequels* 37 (1964) 218-220; 40 (1967) 194-199; 41 (1968) 255-258.
Consecutive Integers Whose Sum of Squares is a Perfect Square. Note on, *Philipp, Stanton.* 37 (1964) 218-220; *Comment* 38 (1965) 106.
Consequence" in the Predicate Calculus. The Notion of ", *Lightstone, A.H.* 42 (1969) 57-60.
Conservation of Energy. A Mathematical Support for the Theory of the, *Neelley, J.H.* 19 (1945) 283-285.
Consideration of the Null Class. A, *Osborn, Roger.* 26 (1953) 175-182.
Consonance and Congruence. *Valentine, Charles W.* 35 (1962) 219-223.
Constellation Morley. *Sastry, K.R.S.* 47 (1974) 15-22.
Constrained Plane Sets. Computation of, *Lohman, Robert H. and Morrison, Terry J.* 50 (1977) 201-205.
Construct a Magic Square of Order 2n From a Given Square of Order n. To, *Candy, A.L.* 8 (1934) 147-160; 9 (1935) 99-105.
Constructibility in Graph-Minimization Problems. Euclidean, *Cockayne, E.J. and Melzak, Z.A.* 42 (1969) 206-208.
Constructing a Third Order Magic Square. *Trigg, Charles W.* 46 (1973) 99.
Construction and Use of a Mathematics Placement Test. The, *Gere, Brewster H.* 16 (1942) 400-406.
Construction by Ruler Only. A, *Bhaskaranandha, C.N.* 35 (1962) 103-104.
Construction for Trisecting the Angle. A, *Lightstone, A.H.* 35 (1962) 99-102.
Construction of Multiple Choice Tests or Barbarous Parodies of the Barber's Paradox... On the, *Anonymous.* 43 (1970) 213-214.
Construction of Objective Tests in Mathematics. *Ballard, Ruth M.* 16 (1941) 150-156.
Construction of Regular Polygons of pq Sides Leading to a Geometric Proof of rp - sq = 1. A, *Johnson, Paul B.* 38 (1965) 164-165.
Construction of the Green's Function of a Linear Differential System. *Miller, Kenneth S.* 26 (1952) 1-8.
Construction of the Position and Extent of the Axes of an Ellipse, Given a Pair of Semi-Conjugate Diameters. *Mills, C.N.* 26 (1953) 227-228.
Construction of the Real Number System. On the, *Moran, W. and Pym, J.S.* 43 (1970) 257-259.
Construction of Two-Center Ellipse. *Gwinner, Harry.* 3:1 (1928) 19-20.
Construction Problems in Geometry. Note Concerning Two, *Tan, Kaidy.* 38 (1965) 222-228.
Construction Shortcuts. Ellipse, *Elrod, S.B.* 26 (1952) 97-99.
Constructions for Certain Circles of

Curvature and Related Extreme Problems. *Freitag, Herta Taussig and Freitag, Arthur H.* 40 (1967) 145-150.
Constructions for the Solution of the m Queens [Chess] Problem. *Hoffman, E.J.; Loessi, J.C. and Moore, R.C.* 42 (1969) 66-72.
Constructions With a Two-Edged Ruler. Two, *Olivier, Donald.* 36 (1963) 24.
Constructions with Straightedge and Compasses. Certain Topics Related to, *Hess, Adrien L.* 29 (1956) 217-221.
Contact Transformations. On a Group of, *Sakellariou, Nilos.* 22 (1948) 13-18.
Contagious Properties. *Chew, James.* 47 (1974) 84-87; *Comment* 47 (1974) 235.
Content. Rectifiable Curves Are of Zero, *Burckel, R.B. and Goffman, Casper.* 44 (1971) 179-180.
Contingency Tables. Some Probability Estimates From, *Smith, C.D.* 25 (1951) 59-62.
Continuants. An Application of, *Basin, S. L.* 37 (1964) 83-91.
Continued Fraction. An Interesting, *Shallit, Jeffrey.* 48 (1975) 207-211.
Continued Fractions. *Scott, W.T. and Wall, H.S.* 13 (1939) 305-322.
Continued Fractions. The Approximation of Real Roots of Equations by Simple, *Garver, Raymond.* 7:2 (1932) 20-22.
Continuity. A Sequence Approach to Uniform, *Staib, John H.* 40 (1967) 270-273.
Continuity and Differentiability. Some Examples Illustrating, *Raisbeck, Gordon.* 23 (1949) 17-22.
Continuity Concept. Extended Topology: The, *Hammer, Preston C.* 36 (1963) 101-105.
Continuity of Coordinate Functionals. *Milnes, Paul.* 49 (1976) 139.
Continuity of Inverse Functions. *Hoffman, Michael J.* 48 (1975) 66-73.
Continuity of Real-Valued Functions. On Conditions Implying, *Dickman, R.F., Jr.* 45 (1972) 201-204.
Continuity: Sets of Infinite Limit. Variations on, *Bumcrot, R. and Sheingorn, M.* 47 (1974) 41-43.
Continuous Closed Real Functions. A Characterization of, *Espelie, M. Solveig and Joseph, James E.* 45 (1972) 200-201.
Continuous, Exactly K-to-One Functions on R. *Wenner, B.R.* 45 (1972) 224-225.
Continuous Functions. On (p,q)-, *Chen, Louis H.Y. and Yap, Leonard Y.H.* 48 (1975) 30-33.
Continuous Functions. On Properties Preserved by, *Gemignani, Michael C.* 41 (1968) 181-183.
Continuous Functions on the Real Line by Infinitely Differentiable Functions. Uniform Approximation of Real, *Pursell, Lyle E.* 40 (1967) 263-265.
Continuous Functions. Some Remarks about Real Almost, *Husain, Taqdir.* 40 (1967) 250-254.
Continuous Functions. The Extension of a Rectangular Matrix of, *Mathis, H.F.* 25 (1951) 3-6.
Continuous Multiplications in R^2. *Heuer, G.A.* 45 (1972) 72-77; *Comment* 46 (1973) 160.
Continuous Transformations of Finite Homogeneous Spaces. *McCoy, Dorothy.* 10 (1936) 212-218.
Continuum Hypothesis. Ode to the, *Machover, Maurice.* 50 (1977) 94.
Contour Integral and First Order Expansion Problem. A, *Doole, H.P.* 20 (1945) 79-85.
Contradictions in Boundary Value Problems. On Some, *Reid, Walter P.* 37 (1964) 172-175.
Contravariant Vectors. Covariant and, *Deans, S.R.* 44 (1971) 5-8.
Control Charts by Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. Statistical Decision Procedures in Industry. I: *Coleman, Edward P.* (I); *Gold, Ben K.* (II); *Howell, John M.* (III) and *Moan, O.B.* (IV). 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Conventions for Sign. The Distance Formula and, *Mott, Thomas E.* 35 (1962) 39-42.
Convergence in Topology. Note on, *Arens, Richard.* 23 (1950) 229-234.
Convergence of Jacobi and Gauss-Seidel Iteration. The, *Venit, Stewart.* 48 (1975) 163-167.
Convergence of Taylor Series for Functions of n Variables. On the, *Day, James Thomas.* 40 (1967) 258-260.
Convergence Rate of an Iterative Process. On the, *Gregory, Robert T.* 29 (1955) 63-68.
Convergence Test for Alternating Series. On a, *Lariviere, R.* 29 (1955) 88.
Convergent Series. Extensions on a Theme Concerning Conditionally, *Cerimele, B.J.* 40 (1967) 120-128.
Convergent Series. Geometric Examples of, *Barnhart, C.A.* 17 (1943) 159-162.
Converse Malfatti Problem. The, *Goldberg, Michael.* 41 (1968) 262-266.
Converse" to Fermat's Last Theorem? A ", *Sesskin, Sam.* 35 (1962) 215-217.
Converses and Their Extensions. Theorems, Their, *Court, Nathan Altshiller.* 17 (1943) 195-201.
Convex Bodies and Lattice Points. *Scott, P.R.* 48 (1975) 110-112.
Convex Curve. Minimum Triangles Inscribed in a, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 256-260.
Convex Curves. Corn Rows and, *Brooks, Foster.* 44 (1971) 141-144.

Convex Domains. Two-Dimensional Lattices and, *Reich, Simeon.* 43 (1970) 219-220.
Convex Polygon. The Number of Regions Determined by a, *Freeman, J.W.* 49 (1976) 23-25.
Convex Polygons Inscribed in Open Sets. A Note on, *Bruckner, Andrew M.* 37 (1964) 250-251.
Convex Polyhedra. On, *Chand, D.R. and Kapur, S.S.* 43 (1970) 202-209.
Convex Polyhedron. The Maximum Diameter of a, *Jucovič, E. and Moon, J.W.* 38 (1965) 31-32.
Convex Regions. Symmetrical Types of, *Sobczyk, Andrew.* 29 (1956) 175-192.
Convex Sets. Equipartition of, *Buck, R. C. and Buck, Ellen F.* 22 (1949) 195-198.
Convex Sets. Lattice Points in, *Scott, P. R.* 49 (1976) 145-146.
Convex Sets. Separation Theorems for, *Pettis, B.J.* 29 (1956) 233-247.
Convex Solutions of Implicit Relations. *Brock, William A. and Thompson, Russell G.* 39 (1966) 208-211.
Conway Stones: What the Original Hebrew May Have Been. The, *Berry, Daniel M. and Yavne, Moshe.* 49 (1976) 207-210.
Cooperation and Competition. N Producers in, *Aucoin, A.A.* 11 (1937) 354-360.
Coordinates: *see also* Polar.
Coordinate Functionals. Continuity of, *Milnes, Paul.* 49 (1976) 139.
Coordinates. Unique Differential Ratios And Curvilinear, *Pyle, H. Randolph.* 33 (1960) 193-198.
Coordinating the Teaching of Mathematics in High Schools and Colleges. *Gunder, Dwight F.* 15 (1941) 248-250.
Coordination of Mathematics and Science Through Student Activities. *Kormes, J.P.* 20 (1945) 86-90.
Copernicus and Kepler]. The Harmony of the World [, *Kline, Morris.* 27 (1954) 127-139.
Copernicus, Representative of Polish Science and Learning. *Karpinski, Louis C.* 19 (1945) 343-348.
Corn Rows and Convex Curves. *Brooks, Foster.* 44 (1971) 141-144.
Corners. On Curves with, *Staib, John H.* 41(1968) 134-136.
Correction and Generalization of Neustadt's Law [Satire]. A, *Funkenbusch, William W.* 31 (1958) 159-161.
Correction Formulas for the Variance of a Sequence. Iteration and, *Pascual, Michael J.* 42 (1969) 249-252.
Correlated Observations. Computational Savings in Routine Comparisons of the Means of, *Baker, G.A.* 15 (1941) 399-400.
Correlation. A Note on Simple, *Fréchet, Maurice.* 32 (1959) 265-268.
Correlation and Eccentricity. Relation Between, *Bleick, W.E.* 43 (1970) 149-150.
Correlation and Secondary School Mathematics. *Reeve, W.D.* 9 (1934) 10-12.
Correlation for a Composite Group in Terms of Similar Indices of Its Subgroups. Formulas Suitable for Machine Computation for the Mean, Standard Deviation, and Coefficient of, *Mills, C.N.* 15 (1941) 395-398.
Correlation. On the Mathematics of Simple, *Smith, C.D.* 32 (1958) 57-69.
Correlation. Some Further Notes on the Theory of, *Smith, C.D.* 32 (1959) 269-270.
Correspondence $C_{2,2}$ and a Relation Connecting Them. Two Ways of Setting Up the Symmetric, *Burke, Sister Leonarda.* 16 (1941) 29-33.
Correspondence. Counting by, *Cormier, Romae J. and Eggleton, Roger B.* 49 (1976) 181-186.
Cos nx. On a Formula for, *Makowski, Andrzej.* 35 (1962) 243-244.
Coset of Solutions of a System of Linear Equations. The, *Morrill, John E.* 42 (1969) 248-249.
Cosets in a Semi-Group. *Weaver, Milo W.* 25 (1952) 125-136.
Cosine Functions. The Sine and, *Mancill, Julian D.* 36 (1963) 302-311.
Cosine Law. Some Deductions from the, *Sanders, S.T.* 3:5 (1929) 22-23.
Cosine. On Defining the Sine and, *Sholander, Marlow.* 43 (1970) 72-75.
Cosines for Polygons. The Law of Sines and Law of, *Kershner, R.B.* 44 (1971) 150-153.
Cosines. Remarks on the Law of, *Olds, Edwin G.* 11 (1937) 324-326.
Cotes. On the Discovery of the Logarithmic Series and Its Developments in England up to, *Hofmann, Josef Ehrenfried.* 14 (1939) 37-45.
Count! So You Think You Can, *Adler, Jerry.* 28 (1954) 83-86.
Counterexample in Matrix Analysis. A, *Winter, B.B.* 47 (1974) 152-153.
Counterfeit Coin Problems. *Manvel, Bennet.* 50 (1977) 90-92.
Counting by Correspondence. *Cormier, Romae J. and Eggleton, Roger B.* 49 (1976) 181-186.
Covariance of Monotone Functions. *Behboodian, Javad.* 45 (1972) 158.
Covariant and Contravariant Vectors. *Deans, S.R.* 44 (1971) 5-8.
Covariants of a Quadric Surface. The, *Smith, H.L.* 10 (1936) 297-301.
Covering Classes of Residues in $Z(\sqrt{-2})$. *Jordan, J.H. and Schneider, D.G.* 44 (1971) 257-261.
Covering Deleted Chessboards with Dominoes. *Singmaster, David.* 48 (1975) 59-66.
Covering Problems. *Kelly, L.M.* 19 (1944) 123-130.
Covering Property. On the Minimal Rectangular Region Which Has the Lattice

Point, *Maier, E.A.* 42 (1969) 84-85.
Covering Sets of Congruences. *Billik, Martin and Edgar, Hugh M.* 46 (1973) 265-270.
Covering Theorem for Rectangles. The Lattice Point, *Niven, Ivan and Zuckerman, Herbert S.* 42 (1969) 85-86.
Covers for Closed Curves. Minimal, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 55-61.
Craig's paper 'On Extensors and the Lagrangian Equations of Motion.' Comments on and additions to H.V., *Horton, C.W.* 23 (1949) 31-32.
Cramer's Rule. A Short Proof of, *Robinson, Stephen M.* 43 (1970) 94-95.
Cramer's Rule. A Vectorial Derivation of, *Klimozak, W.J.* 29 (1956) 154-157.
Cramer's Rule. Using "Cross Products" to Derive, *Barr, Donald R.* 38 (1965) 64-66.
Critical Curves in Seismic Exploration. *Helfenstein, H.G.* 31 (1957) 85-90.
Critical Graphs of Diameter 2. On, *Murty, U.S.R.* 41 (1968) 138-140.
Critical Values of the Cubic Function. An Algebraic Method for Finding the, *Clair, Harry S.* 32 (1958) 31-32.
Critically Damped Oscillator. On the, *Baslaw, Ronald S. and Hastings, Harold M.* 48 (1975) 105-106.
Cross] Product a x (b x c). A Note on the Vector [, *Grimm, C.A.* 43 (1970) 150.
Cross Products" to Derive Cramer's Rule. Using ", *Barr, Donald R.* 38 (1965) 64-66.
Cross Ratio on the Real Line. The, *Whitehead, Earl Glen, Jr.* 42 (1969) 193-195.
Crossed Ladders. The, *Arnold, H.A.* 29 (1956) 153-154.
Crossing" Puzzles. An Analytic Method for the "Difficult, *Schwartz, Benjamin L.* 34 (1961) 187-193.
Crossing" Puzzles. Dynamic Programming and "Difficult, *Bellman, Richard.* 35 (1962) 27-29.
Crossing Puzzles. Graphical Solution of Difficult, *Fraley, Robert; Cooke, Kenneth L. and Detrick, Peter.* 39 (1966) 151-157.
Cryptographic Slide Rules. *Levine, Jack.* 34 (1961) 322-328.
Cube. On Representation by a, *Hunter, J.A.H.* 36 (1963) 129.
Cube. On the Densest Packing of Equal Spheres in a, *Goldberg, Michael.* 44 (1971) 199-208.
Cube Root of Binomial Quadratic Surds. Finding the, *Tan, Kaidy.* 39 (1966) 212-214.
Cube to N Dimensions. The Number of Segments Needed to Extend a, *Hess, Adrien L. and Diekhans, Carl.* 43 (1970) 189-192.
Cubelets. Slicing Boxes Into, *Niven, Scott.* 47 (1974) 101-103.
Cubes and Squares. Proof without Words: *Love, J. Barry.* 50 (1977) 74.
Cubes. Note on Squares and, *Allard, Jacques.* 37 (1964) 210-214.
Cubes. Palindromic. *Trigg, Charles W.* 34 (1961) 214.
Cubes. Second Order Perimeter-Magic and Perimeter-Antimagic, *Trigg, Charles W.* 47 (1974) 95-97.
Cubic. A Certain Geometrical Calculus by Van Der Waerden in Connection with the Elliptic, *Emch, Arnold.* 14 (1940) 439-442.
Cubic. A Graphical Determination of the Nature of the Roots of a, *Hellman, Morton J.* 34 (1961) 221-222.
Cubic. A Graphical Solution for the Complex Roots of a, *Yanosik, George A.* 10 (1936) 139-140.
Cubic. A Graphical Solution of the, *Curtis, H.B.* 12 (1938) 325-326.
Cubic. A Speedy Solution of the, *Pettit, John T.* 21 (1947) 94-98; *Comment* 21 (1948) 265-266.
Cubic and Those of its Derivative. On the Roots of a, *Garver, Raymond.* 6:7 (1932) 24-27.
Cubic Curve. A Note on the Rational Plane, *Kraus, G.R. and Neelley, J.H.* 14 (1939) 134-137.
Cubic Curve Associated With a Triangle. On a, *Weaver, J.H.* 11 (1937) 293-296.
Cubic Curves. Polygons as Fundamental Elements in the Geometry of Plane, *Feld, J.M.* 14 (1940) 367-371.
Cubic Diophantine Equations. On, *Parker, W. Vann and Aucoin, A.A.* 13 (1938) 115-117.
Cubic Equation. Another Solution of the, *Campbell, J.G.* 35 (1962) 43.
Cubic Equation. Hyperbolic Solution of the, *Short, W.T.* 12 (1937) 111-114.
Cubic Equation. The History of the Solution of the, *Guilbeau, Lucye.* 5:4 (1930) 8-12.
Cubic Equation. Using the Hessian to Solve a, *Ward, James A.* 9 (1935) 235-240.
Cubic Equations by Using the Slide Rule. A Method for Finding the Real Roots of, *Pennisi, Louis L.* 31 (1958) 211-214; *Comment* 32 (1958) 41-43.
Cubic Equations. Khayyam's Solution of, *Amir-Moéz, Ali R.* 35 (1962) 269-272.
Cubic Equations. New Models for the Solution of Quadratic and, *Emch, Arnold.* 9 (1935) 162-164.
Cubic Equations on a Slide Rule. A Supplementary Note on Solutions of, *Schwartz, Benjamin L.* 32 (1958) 41-43.
Cubic Equations. On the Graphical Solution of, *Kulik, S.* 28 (1955) 143-146.
Cubic Equations. On Various Methods of

Solving, *Fettis, Henry E.* 17 (1942) 117-130.
Cubic Function. An Algebraic Method for Finding the Critical Values of the, *Clair, Harry S.* 32 (1958) 31-32.
Cubic of Tschirnhausen. On the, *Weaver, J.H.* 16 (1942) 371-374.
Cubic. Plotting the, *Nichols, Irby C.* 3:5 (1929) 18-21.
Cubics. A Geometrical Interpretation of the Invariant System of Two Binary, *Rolfe, Kathryn B.* 19 (1945) 211-220.
Cubics and Quadratics. An Integral Property of, *Talbot, Walter R.* 37 (1964) 325.
Cubics and Quartics. Graphical Solutions for Complex Roots of Quadratics, *Yanosik, George A.* 17 (1943) 147-150.
Cubics and Quartics. Some New Intrinsic Properties of, *Franks, J. Russell.* 22 (1948) 73-76.
Cubics. Application of Elliptic Functions to Certain Problems in Plane, *Daniells, Marian E.* 10 (1936) 127-133.
Curiosa from [the Number] 1961. *Trigg, Charles W.* 34 (1961) 321.
Curious Function from Elementary Calculus. A, *Sell, William.* 7:5 (1933) 13-15; *Sequel* 7:7 (1933) 29-30.
Curious Property of the Integer 38. A, *Just, Erwin and Schaumberger, Norman.* 46 (1973) 221; *Sequel* 48 (1975) 221-223.
Curious Sequence. A, *Kahan, Steven.* 48 (1975) 290-292; *Comment* 49 (1976) 102-103.
Current Groups. The Number of 12 x 12 Squares That Can Be Constructed by the Method of, *Candy, A.L.*9 (1935) 223-235.
Current In An Iron Clad Circuit. The Build Up of, *Merrill, Lynn L.* 14 (1939) 100-102.
Curriculum. Learning Theories and the Mathematics, *Horton, Robert E.* 33 (1959) 79-98.
Curriculum. Mathematics and the Engineering, *Gunder, Dwight F.* 15 (1941) 419-422.
Curriculum. Mathematics in the Engineering, *Horton, Robert E.* 32 (1959) 137-149.
Curriculum. Vexing Minor Problems of the Mathematics, *Read, Cecil B.* 13 (1939) 237-239.
Curvature and Related Extreme Problems. Constructions for Certain Circles of, *Freitag, Herta Taussig and Freitag, Arthur H.* 40 (1967) 145-150.
Curvature. Angle of Inclination and, *Gans, David.* 31 (1957) 31-32.
Curvature by Normal Line Convergence. *Seiner, Jerome A.* 39 (1966) 147-148.
Curvature. Solution of Numerical Equations by Use of the Circle of, *Wells, Richard J.* 13 (1938) 67-72.
Curvature. We Discover the Meaning of, *Olds, Edwin G.* 14 (1940) 469-471.
Curve. A Generalization of the von Koch, *Schneider, Joel E.* 38 (1965) 144-147.
Curve. A Note on the Rational Plane Cubic, *Kraus, G.R. and Neelley, J.H.* 14 (1939) 134-137.
Curve. A Note on the 3-Bar, *Yates, Robert C.* 14 (1940) 190-192.
Curve Analysis. Root Isolation Through, *Kennedy, E.C.* 14 (1940) 373-378.
Curve Associated With a Triangle. On a Cubic, *Weaver, J.H.* 11 (1937) 293-296.
Curve Fitting. An Application of Schwarz's Inequality to, *Thoro, Dmitri.* 35 (1962) 12.
Curve. Minimum Triangles Inscribed in a, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 256-260.
Curve of Constant Diameter. A, *Burke, John F.* 39 (1966) 84-85.
Curve. On a General Trihedron of a, *Yannopoulos, Alex J.* 25 (1952) 189-190.
Curve. Tangent Outside the, *Ransom, William R.* 37 (1964) 340-341.
Curve. The Rectifying, *Mather, Roy A.* 14 (1940) 449-454.
Curve with Triple Point. On the Rational Plane Quartic, *Arnold, H.E. and Parente, A.R.* 14 (1939) 138-140.
Curves. A Note on Space, *Subba Rao, H.S.* 33 (1960) 162-164.
Curves. An "Obvious" But Useful Theorem About Closed, *Schaer, Jonathan.* 45 (1972) 154-155.
Curves Are of Zero Content. Rectifiable, *Burckel, R.B. and Goffman, Casper.* 44 (1971) 179-180.
Curves Associated with a Pair of Curves. Bertrand, *Burke, John F.* 34 (1960) 60-62.
Curves Associated with a Variable Triangle. Notes on Two, *Vest, M.L.* 13 (1939) 215-222.
Curves. Corn Rows and Convex, *Brooks, Foster.* 44 (1971) 141-144.
Curves]. Garrett's Mechanism [for Drawing, *Jones, W.C.* 12 (1937) 118-121.
Curves. Historical Stages in the Definition of, *Boyer, Carl B.* 19 (1945) 294-310.
Curves in Polar Coordinates. An Easy Method for Drawing, *Bettinger, A.K.* 11 (1937) 327-331.
Curves in Seismic Exploration. Critical, *Helfenstein, H.G.* 31 (1957) 85-90.
Curves. Invariants Associated with a Family of, *Nowlan, F.S. and Aucoin, A.A.* 37 (1964) 132-138.
Curves. Mechanically Described, *Yates, Robert C.* 10 (1936) 134-138.
Curves. Minimal Covers for Closed, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 55-61.

Curves of Even Degree. On Tangents to, *Parker, W. Vann.* 6:3 (1931) 17-20.
Curves. On a Family of, *Parker, W. Vann.* 7:7 (1933) 29-30.
Curves. On the Leaf, *Aucoin, A.A.* 43 (1970) 156-157.
Curves. On the Polar Projection with Respect to Normal, *Inagaki, Masaru.* 31 (1958) 141-153.
Curves. Polygons as Fundamental Elements in the Geometry of Plane Cubic, *Feld, J.M.* 14 (1940) 367-371.
Curves]. Rockers and Rollers [, *Robison, Gerson B.* 33 (1960) 139-144.
Curves Setting Up a Null System in Space. Skew, *Eves, Howard.* 19 (1944) 55-61.
Curves. The Higher Singularities of Algebraic, *Walker, B.M.* 12 (1938) 263-285.
Curves. The Osculating Conics of Physical Systems of, *Kasner, Edward and DeCicco, John.* 25 (1952) 117-124.
Curves. Theory of Budgets Based on Parabolic Engel, *Baker, G.A.* 26 (1952) 67-70.
Curves. Vertex Points of, *Amir-Moéz, Ali R.* 36 (1963) 109-118.
Curves with Corners. On, *Staib, John H.* 41 (1968) 134-136.
Curves $z = (t - t^n)/2$. On the Family of, *Sloyan, Sister M. Stephanie.* 35 (1962) 211-213.
Curvilinear Coordinates. Unique Differential Ratios And, *Pyle, H. Randolph.* 33 (1960) 193-198.
Curvilinear Projection. *Amir-Moéz, Ali R.* 33 (1959) 103-104.
Cycles. On Bases and, *Subramanian, Pudukkottai K.* 41 (1968) 117-123.
Cyclic Differential Equations. How to Solve, *Karst, Edgar.* 37 (1964) 305-308.
Cycloidal Motion of Electrons. *Rauch, S. E.* 26 (1953) 255-262.
Cyclotomic Fields. A Lattice of, *Chalkley, Roger.* 48 (1975) 42-44.
Cyclotomic Polynomials. A Note on Coefficients of, *Habermehl, Helen; Richardson, Sharon and Szwajkos, Mary Ann.* 37 (1964) 183-185.
Cyclotomic Polynomials. Factorization of $x^{2n}+x^n+1$ Using, *Tuckerman, Bryant.* 42 (1969) 41-42.
Cylinders into Cylindrical Containers. Packing, *Kravitz, Sidney.* 40 (1967) 65-71.

D

Damped Oscillator. On the Critically, *Baslaw, Ronald S. and Hastings, Harold M.* 48 (1975) 105-106.
Danger of Induction. On the, *Moser, Leo.* 23 (1949) 109.
Daniell Process of Extending an Integral. Completion of Seminormed Spaces and the, *Lamadrid, Jesús Gil de.* 33 (1960) 199-210.
de Lagny. Notes on Thomas Fantet, *Nordgaard, Martin A.* 11 (1937) 361-373.
Decimals. A Mechanical [Slide Rule] Device, "The X-Pone", for Pointing Off, *Weckesser, C.L.* 28 (1954) 87-92.
Decimals. Intrinsic, *Aude, H.T.R.* 8 (1933) 8-12.
Decimals. Intrinsic, *McGiffert, James.* 7:3 (1932) 7-10; *Sequel* 8 (1934) 103-107.
Decimals. Notes on the Origin [, History] and Use of, *Forno, Dora M.* 3:8 (1929) 5-8.
Decision Method for Trigonometric Identities. A, *Chamberlin, Eliot and Wolf, James.* 27 (1953) 75-77.
Decision Procedures in Industry. I: Control Charts by Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. Statistical, *Coleman, Edward P.* (I); *Gold, Ben K.* (II); *Howell, John M.* (III) and *Moan, O.B.* (IV). 35 (1962) 129-143, 195-201, 259-268; 36 (1963) 1-10.
Decomposable Tensors. Norm Preserving Operators on, *Bronson, Richard.* 46 (1973) 100.
Decomposition of Matrices for High School Students. Spectral, *Wilansky, Albert.* 41 (1968) 51-59.
Decomposition of Rational Fractions Into Partial Fractions. *Boldyreff, Alexander W.* 17 (1943) 261-267; *Reprinted (with examples)* 24 (1951) 139-146.
Decomposition of the Integers to Generate Graphs. A, *Dilley, Norman R.* 39 (1966) 30-35.
Deductions from the Cosine Law. Some, *Sanders, S.T.* 3:5 (1929) 22-23.
Defense of the "Indirect" Proof. In, *Seidlin, Joseph.* 6:7 (1932) 4-17.
Defining the Interchange of a Loop. *Schwartz, Benjamin L.* 43 (1970) 141-143.
Defining the Sine and Cosine. On, *Sholander, Marlow.* 43 (1970) 72-75.
Definite Integrals Occurring in Havelock's Work on the Resistance of Ships. Some, *Bateman, H.* 23 (1949) 1-4.
Definition of Functions from Certain Non-Linear Differential Equations. The, *Carter, Paula Winn and Stein, F. Max.* 38 (1965) 96-101.
Definition of Mathematics. A Simple Extension of the Aristotelian, *Kennedy, H.* 30 (1957) 207-208.
Definition of the Sum of Two Vectors. On the, *Smith, H.L.* 6:7 (1932) 30-31.
Definition Versus Property. *Ransom, William R.* 41 (1968) 266-268.
Definitions of Probability. *Allen, Edward S.* 8 (1934) 132-135.

Definitions of Tangent Plane, Two, *Long, Clifford A.* 44 (1971) 212-214.
Definitions of the Euler and Möbius Functions. The, *Cohen, Eckford.* 38 (1965) 14-17.
Definitions. Some Comments About, *Bruyr, Donald L.* 43 (1970) 57-64.
Degrees of Freedom Into Comparisons When the "Classes" Do Not Contain the Same Number of Items. Analyzing, *Baten, William Dowell.* 19 (1945) 221-228.
Delinquincy in College Mathematics. The Cause and Cure of, *James, Glenn.* 11 (1937) 274-278.
Deltoid. Geometric Properties of the, *Fettis, Henry E.* 19 (1945) 327-335.
DeMar's "A Simple Approach to Isoperimetric Problems in the Plane" and an Epilogue. A Note on, *Garvin, Alfred D.* 48 (1975) 219-221.
Democratic Proof of a Combinatorial Identity. A, *Flanders, Harley.* 44 (1971) 11.
Demonstration of Intersections. The, *Burg, W.V.* 13 (1939) 192-193.
Dense Packing of Equal Circles Within a Circle. *Reis, George E.* 48 (1975) 33-37.
Densest Packing of Equal Spheres in a Cube. On the, *Goldberg, Michael.* 44 (1971) 199-208.
Densities of Order Statistics. A Note on, *Makowski, Gary G.* 47 (1974) 100-101.
Density of Segment-Generated Sets of Points in Regions of a Plane. A Doodling Problem Involving the, *Heacock, Larry.* 42 (1969) 60-66.
Dependence of Vectors in a Finite Dimensional Vector Space. A New Necessary and Sufficient Condition for Linear, *Laidacker, Michael A.* 43 (1970) 157-158.
Derivation of Certain Partial Differential Equations. *Redheffer, R.M.* 27 (1954) 195-200.
Derivation of the Product Formulas of Trigonometry from a Figure. *Thomas, Paul D.* 20 (1945) 93-94.
Derivative: *see also* Directional.
Derivative. Difference Quotients and the Teaching of the, *Zlot, William Leonard.* 36 (1963) 63-64.
Derivative Inequalities and Differential Equations. Linear, *Ettlinger, H.J.* 11 (1936) 126-130.
Derivative of a Determinant of the j-th Order. On the n-th, *Christiano, John G. and Hall, James E.* 37 (1964) 215-217.
Derivative of a Polynomial on Various Arcs of the Complex Domain. The, *Sewell, W. E.* 12 (1938) 167-170.
Derivative of Generalized Order. On the Intrinsic, *Sasayama, Hiroyoshi.* 30 (1957) 135-143.
Derivative of sin x]. A New Approach to an Old Problem [on the, *Lindstrom, Peter A.* 42 (1969) 88-90.
Derivative of the Inverse Function. The Existence of the, *Starr, Norton.* 44 (1971) 189-190.
Derivative of the Logarithmic Function. On the, *Parker, F.D.* 36 (1963) 30.
Derivatives] f+(a) to f'(a+). The Relation of [the, *Langlois, W.E. and Holder, L.I.* 39 (1966) 112-120.
Derivatives of Determinants and Other Multilinear Functions. *May, Kenneth O.* 38 (1965) 307-308.
Derivatives of Polynomials. Inequalities for the, *Boas, Ralph P., Jr.* 42 (1969) 165-174.
Derivatives of the Function Vanish at the Boundary. On a Property of the Laplacian of a Function in a Two Dimensional Bounded Domain, when the First, *De Fériet, J. Kampé,* 21 (1947) 74-79.
Derivatives of the Legendre Polynomials. Note on the, *Peyser, Gideon.* 31 (1958) 210.
Derivatives of the Trigonometric Functions. The, *Pascual, Michael J.* 31 (1957) 39-40.
Derivatives: Why They Elude Classification. *Bruckner, Andrew M.* 49 (1976) 5-11.
Derived Functions [Newton Quotients]. An Application of Certain Partial, *Rickey, F.A.* 4:8 (1930) 9-12.
Derived Sets. On, *Rutt, Norman E.* 18 (1943) 53-63.
Desarguean Pairs of Triangles. A Problem of Three, *Hsu, Chen-Jung.* 40 (1967) 255-258.
Desargues' Theorem. Different Proofs of, *Tan, Kaidy.* 40 (1967) 14-25.
Desarguesian Plane. A Simple Construction of a Non-, *Saxena, Subhash C.* 46 (1973) 225.
Descartes' Method of Tangents. *Miser, Wilson L.* 7:7 (1933) 16-21.
Descartes' Rule of Signs. A Simple Proof of, *Krishnaiah, P.V.* 36 (1963) 190.
Descartes. The Influence of Mathematics on the Philosophy of, *Moorman, R.H.* 17 (1943) 296-307.
Descent Method to Prove Pythagorean Principle. An Infinite, *Gandhi, J.M.* 30 (1957) 250.
Determinant Formula for Higher Order Approximation of Roots. A, *Wolfe, J.M.* 31 (1958) 197-199.
Determinant Function. On the Properties of a, *Bell, Clifford.* 10 (1936) 171-174.
Determinant. Note on Factorization in Connection with a Certain, *Sanders, S.T.* 3:8 (1929) 15-18.
Determinant of Order n. Concerning the Factorization of a Certain Symmetric, *Moritz, R.F.* 4:4 (1929) 9-11.

Determinant of the j-th Order. On the n-th Derivative of a, *Christiano, John G. and Hall, James E.* 37 (1964) 215-217.
Determinant with Square Value Independent of Four Elements. *Trigg, Charles W.* 34 (1961) 385.
Determinants. A Census of Nine-Digit, *Trigg, Charles W.* 36 (1963) 153-156.
Determinants. A Property of Third Order, *Trigg, Charles W.* 35 (1962) 78.
Determinants. A Theorem on, *Trigg, Charles W.* 34 (1961) 328.
Determinants. An Expansion of Third Order, *Trigg, Charles W.* 35 (1962) 234.
Determinants. An Investigation of Nine-Digit, *Bicknell, Marjorie and Hoggatt, Verner E., Jr.* 36 (1963) 147-152.
Determinants and Multilinear Vectors. Non-Square, *Pyle, H. Randolph.* 35 (1962) 65-69.
Determinants and Other Multilinear Functions. Derivatives of, *May, Kenneth O.* 38 (1965) 307-308.
Determinants by Congruences. Evaluation of, *Valyocsik, Ernest W.* 34 (1961) 218-220.
Determinants. Concerning Diagrams for, *Gould, H.W.* 36 (1963) 125-126.
Determinants. Factorable, *Bowman, K.O. and Shenton, L.R.* 45 (1972) 144-147.
Determinants for [the Number] 1961. *Trigg, Charles W.* 34 (1961) 194.
Determinants. Further Properties of Third Order, *Cohen, Joel E.* 35 (1962) 304.
Determinants. Motivating the Study of, *Shepherd, W.L.* 28 (1955) 280-281.
Determinants, Permanents and Bipartite Graphs. *Harary, Frank.* 42 (1969) 146-148.
Determinants. Systems of Equations, Matrices and, *Taussky, Olga and Todd, John.* 26 (1952) 9-20, 71-88.
Determinants That Sum to Zero. Twisted, *Cohen, Joel E.* 37 (1964) 267-269.
Determinants to Geometry. Some Applications of, *Izard, Roberta and Wilson, Mary Elizabeth.* 6:4 (1932) 19-23.
Developable Surfaces of Revolution. On Ruled and, *Klamkin, Murray S.* 27 (1954) 207-209.
Development of Abstract Set Theory. Some Comments on the Role of the Axiom of Choice in the, *Zlot, William Leonard.* 32 (1959) 115-122.
Development of Algebraic Numbers. Gauss and the Early, *Bell, E.T.* 18 (1944) 188-204, 219-233.
Development of Associative Algebra and an Algebraic Theory of Numbers (I-IV). A, *Vandiver, H.S. and Weaver, Milo W.* (Parts III, IV). 25 (1952) 233-250; 27 (1953) 1-18; 29 (1956) 135-151; 30 (1956) 1-8; *Errata* 30 (1957) 219.
Development of Elementary Geometry. The, *Buchanan, H.E.* 3:5 (1929) 9-18.
Development of] Mathematics in Scotland Before the Eighteenth Century. [, *Sleight, E.R.* 18 (1944) 305-314.
Development of Mathematics in Scotland, 1669-1746. *Sleight, E.R.* 19 (1945) 173-185.
Development of Mathematics. The Influence of Tidal Theory Upon the, *Bateman, H.* 18 (1943) 14-26.
Development of Tables of Weight, Length and Time. The Origin and, *Sleight, E. R.* 19 (1945) 236-243.
Developments in Geometry [i.e., Topology]. On Recent, *Smith, C.D.* 5:7 (1931) 23-27.
Developments in Secondary Mathematics. *Smith, C.D.* 5:4 (1930) 4-8.
Devil and the Deep Blue Sea. Between the [Educational], *Seidlin, Joseph.* 30 (1957) 277-281.
Diagonal Elements of a Positive Matrix. On the Product of, *Amir-Moéz, Ali R. and Johnston, G.E.* 42 (1969) 24-26.
Diagonal Numbers. Side-and-, *Waugh, Frederick V. and Maxfield, Margaret W.* 40 (1967) 74-83.
Diagonalizing Positive Definite Matrices. *Duemmel, James.* 39 (1966) 226-227.
Diagrammatic Solution to "Instant Insanity" Problem. A, *Grecos, A.P. and Gibberd, R.W.* 44 (1971) 119-124.
Dialytic Method for Solving Simultaneous Equations. The, *Miser, Wilson L.* 7:2 (1932) 16-20.
Diameter. A Curve of Constant, *Burke, John F.* 39 (1966) 84-85.
Diameter of a Convex Polyhedron. The Maximum, *Jucovič, E. and Moon, J.W.* 38 (1965) 31-32.
Diameter Relations for Two-Dimensional Lattices. Area-, *Scott, P.R.* 47 (1974) 218-221.
Diameter 2. An Extremal Problem of Graphs with, *Bollobás, Béla and Erdös, Paul.* 48 (1975) 281-283.
Diameter 2. On Critical Graphs of, *Murty, U.S.R.* 41 (1968) 138-140.
Diameters and the Special Theory of Relativity. Conjugate, *Wrede, Robert C.* 42 (1969) 227-232.
Diameters. Construction of the Position and Extent of the Axes of an Ellipse, Given a Pair of Semi-Conjugate, *Mills, C.N.* 26 (1953) 227-228.
Diamond Inequalities. *Klamkin, Murray S. and Schlesinger, Ernest C.* 50 (1977) 96-98; *Comment* 50 (1977) 276.
Dieffenbach's Method for the Solution of Biquadratics. On, *Lorey, Wilhelm.* 11 (1937) 217-220.
Differences: *see also* Finite.
Difference and Differential-Difference Equations. A Symbolic Method for

Finding Integrals of Linear, *Cooke, Kenneth L.* 31 (1958) 121-126.
Difference Between Two Sample Variances. On the, *Craig, Allen T.* 11 (1937) 259-262.
Difference Equations and Their Applications. *Pipes, Louis A.* 32 (1959) 231-246.
Difference Equations with Constant Coefficients. A Matric General Solution of Linear, *Pfouts, Ralph W. and Ferguson, C.E.* 33 (1960) 119-127.
Difference Equations with Constant Coefficients. Particular Solutions of Linear, *Grimm, C.A.* 36 (1963) 54-59.
Difference Method for Obtaining Z-Transforms. A, *Fielder, Daniel C.* 37 (1964) 346-348.
Difference Quotients and the Teaching of the Derivative. *Zlot, William Leonard.* 36 (1963) 63-64.
Difference Quotients and Their Applications--An Abstract. On a Representation of the Newtonian, *Tchakaloff, L.* 11 (1937) 183-184.
Difference. Some Notes on the Mean, *Gill, John P.* 34 (1961) 223-225.
Different Proofs of Desargues' Theorem. *Tan, Kaidy.* 40 (1967) 14-25.
Different Technique for the Evaluation of [the Integral] $\int \sec \theta d\theta$. A, *Whyburn, Clifton T.* 42 (1969) 113.
Differentiability. A Fallacy in, *Wilansky, Albert.* 38 (1965) 108.
Differentiability and Differentiability. Schwarz, *Reich, Simeon.* 44 (1971) 214-216.
Differentiability of Indeterminate Quotients. On the, *Schoenfeld, Lowell.* 41 (1968) 152-155.
Differentiability. Some Examples Illustrating Continuity and, *Raisbeck, Gordon.* 23 (1949) 17-22.
Differentiability. Successive, *Lange, L. H.* 34 (1961) 275-279.
Differentiable Functions. Uniform Approximation of Real Continuous Functions on the Real Line by Infinitely, *Pursell, Lyle E.* 40 (1967) 263-265.
Differential Analyzer. The, *Lebell, Don.* 25 (1952) 203-204.
Differential and Functional Integral Equations. Introduction to a Study of a Type of Functional, *Robinson, Lewis Bayard.* 23 (1950) 183-188.
Differential-Difference Equations. A Symbolic Method for Finding Integrals of Linear Difference and, *Cooke, Kenneth L.* 31 (1958) 121-126.
Differential Elements. Equilong Geometry of Third Order, *De Cicco, John.* 19 (1945) 276-282.
Differential Equation. A Note on an n-th Order Linear, *Klamkin, Murray S.* 32 (1958) 33-34.
Differential Equation. A Representation Formula for the Solutions of the Second Order Linear, *Pellicciaro, E. J.* 43 (1970) 77-80.
Differential Equation] Calculations. Alternating Current [, *Byrne, William E.* 8 (1933) 12-18.
Differential Equation $f'(x) = af(g(x))$. On the, *Struble, Raimond A.* 41 (1968) 260-263.
Differential Equation $f' = f \circ g$ where $g \circ g = I$. On the, *Kuller, Robert G.* 42 (1969) 195-200.
Differential Equation $Mdx + Ndy = 0$. The General Solution of the Exact, *Adkisson, V.W.* 12 (1938) 296-297.
Differential Equation. Methods of Solution of the Riccati, *Haaheim, D. Robert and Stein, F. Max.* 42 (1969) 233-240.
Differential Equation Model for] Torsional Vibration of a System of Disks Attached to a Heavy Shaft. The [, *Wylie, C.R., Jr.* 40 (1967) 86-91.
Differential Equation. On the Separability of the Riccati, *Siller, Harry.* 43 (1970) 197-202.
Differential Equation] Problem. An Electrical [, *Byrne, William E.* 7:7 (1933) 30-33.
Differential Equation with Constant Coefficients. A Method for Finding the Solution of a Non-Homogeneous, *Hoomani, A.A. and Byrd, J.W.* 38 (1965) 283-286.
Differential Equation] $y'' = c^2y$. A Geometric Interpretation of the Solutions of [the, *Lind, D.A.* 39 (1966) 273-276.
Differential Equations. An Application of a Cauchy Functional Equation in Elementary, *Reeves, Roy F. and Pursell, Lyle E.* 29 (1956) 272-273.
Differential Equations as Entire Analytic Functionals of the Coefficient Functions. Solutions of Systems of Linear, *Michal, Aristotle D.* 22 (1948) 57-66.
Differential Equations. Bounds on the Logarithmic Derivative of Solutions of Second Order, *Ronveaux, André.* 41 (1968) 231-234.
Differential Equations by Differentiation. Polynomial Solutions of Certain Linear, *Falbo, Clement Earl.* 35 (1962) 21-26.
Differential Equations. Complex Quantities in the First Course in, *Hamilton, Hugh J.* 29 (1955) 83-88.
Differential Equations. Derivation of Certain Partial, *Redheffer, R.M.* 27 (1954) 195-200.
Differential Equations. Elementary, *Hyers, D.H.* 23 (1950) 193-204.
Differential Equations Exhibiting Dimensional Homogeneity. *Krick, M.S.* 33 (1959) 99-102.

Differential Equations. How to Solve Cyclic, *Karst, Edgar.* 37 (1964) 305-308.
Differential Equations in Which the Coefficient of a Parameter Changes Sign. Expansions Involving, *Camp, Chester C.* 12 (1938) 216-222.
Differential Equations. Linear Derivative Inequalities and, *Ettlinger, H.J.* 11 (1936) 126-130.
Differential Equations of the First Order. A Note on Exact, *Fung, Philip.* 38 (1965) 131-132.
Differential Equations of the First Order. A Proof of the Sufficiency Condition for Exact, *Hellman, Morton J.* 37 (1964) 273.
Differential Equations. On Solutions of Certain Riccati, *Wong, James S.W.* 39 (1966) 141-143.
Differential Equations. On Some Soluble Nth Order, *Klamkin, Murray S.* 43 (1970) 272-275.
Differential Equations. On the Solution of Linear Homogeneous, *Clough, Anne Reseigh and Dickinson, David.* 35 (1962) 235-239.
Differential Equations]. Relaxation Methods [in, *Squire, William.* 33 (1960) 177-183.
Differential Equations Satisfied by the Jacobian Elliptic Functions. Some Nonlinear, *Soudack, A.C.* 37 (1964) 138-147.
Differential] Equations. Some Elementary Properties of the Fundamental Solution of Parabolic [, *Guenther, Ronald.* 39 (1966) 294-298.
Differential Equations. The Definition of Functions from Certain Nonlinear, *Carter, Paula Winn and Stein, F. Max.* 38 (1965) 96-101.
Differential Equations with Constant Coefficients. A Note on Linear, *Kruse, Arthur H.* 34 (1961) 391-400, 409-410.
Differential Equations with Constant Coefficients. Particular Solutions of Second Order Linear, *Grimm, C.A.* 32 (1958) 25-30.
Differential Equations with Quadrilateral Envelope--Cuspidal and Nodal Loci, *Henderson, Archibald.* 20 (1945) 51-68.
Differential Equations without Complex Numbers. Solving, *Pascual, Michael J.* 31 (1957) 93-94.
Differential Expressions. On the Stability of, *Ulam, S.M. and Hyers, D.H.* 28 (1954) 59-64.
Differential-Functional Equation: The Complex Case. A, *Giesy, Daniel P.* 43 (1970) 263-267.
Differential Geometry. Metric, *Beckenbach, Edwin F.* 23 (1950) 143-152.
Differential] Operator D. A Note on the [, *Christiano, John G. and Cormier, Romae J.* 37 (1964) 343-344.
Differential Operators. Factorization of Linear Second Order, *Heinbockel, J.H.* 37 (1964) 302-304.
Differential Ratios And Curvilinear Coordinates. Unique, *Pyle, H. Randolph.* 33 (1960) 193-198.
Differential System. Construction of the Green's Function of a Linear, *Miller, Kenneth S.* 26 (1952) 1-8.
Differentials. First Exercise on, *Longley, W.R.* 10 (1936) 219-226.
Differentials of a Norm. Linear Functionals as, *James, Robert C.* 24 (1951) 237-244.
Differentiation. Another Look at, *Manheim, Jerome H.* 39 (1966) 89-91.
Differentiation Formulas for the Trigonometric Exponential and Logarithmic Functions. Off the Beaten Path with Some, *Eaves, James Clifton.* 26 (1953) 147-152.
Differentiation of Logarithms. *Fulton, Curtis M.* 28 (1954) 8.
Differentiation of Scalar Functions of Vectors. On the, *Smith, H.L.* 4:8 (1930) 17-18.
Differentiation. Polynomial Solutions of Certain Linear Differential Equations by, *Falbo, Clement Earl.* 35 (1962) 21-26.
Differentiation. Tangent Planes and, *Roetman, E.L.* 43 (1970) 1-7.
Difficult Crossing" Puzzles. An Analytic Method for the ", *Schwartz, Benjamin L.* 34 (1961) 187-193.
Difficult Crossing" Puzzles. Dynamic Programming and ", *Bellman, Richard.* 35 (1962) 27-29.
Difficult Crossing Puzzles. Graphical Solution of, *Fraley, Robert; Cooke, Kenneth L. and Detrick, Peter.* 39 (1966) 151-157.
Difficulties in Proposing Undergraduate Research. *Brendan, Brother T.* 35 (1962) 297-299.
Dig That Math. *Dellquest, Wilfrid.* 30 (1957) 206, 221.
Digit Integers. Kaprekar's Routine With Five-, *Trigg, Charles W.* 45 (1972) 121-129.
Digital Arithmetic. Binary, *Pervin, William J.* 43 (1970) 41-42.
Digital Expression] AB/(A+B). Integer Solutions of [the, *Trigg, Charles W.* 34 (1960) 119.
Digital Roots of Perfect Numbers. On the, *Brooke, Maxey.* 34 (1960) 100, 124; *Comment* 35 (1962) 45-46.
Digits. A Relationship Between an Integer and the One with the Reversed Order of, *Hickerson, Dean R.* 47 (1974) 36-39.
Digits Are All Ones. Factoring Integers Whose, *Hayashi, Elmer K.* 49 (1976) 19-22.

Digits are Reversed. Integers That are Multiplied When Their, *Sutcliffe, Alan.* 39 (1966) 282-287; *Sequels* 41 (1968) 84-86; 43 (1970) 89-92.
Digits in Integers. Distribution of, *Boas, Ralph P., Jr.* 50 (1977) 198-201.
Digits. Integers and the Sum of the Factorials of Their, *Poole, George D.* 44 (1971) 278-279; *Comment* 45 (1972) 278.
Digits of Integers in a Given Basis. An Identity for the Sum of, *Mauclaire, Jean-Loup.* 47 (1974) 225.
Digits of $MN(M^2-N^2)$. Terminal, *Trigg, Charles W.* 34 (1961) 159-160; *Correction* 34 (1961) 233-235.
Digits. On the Reversing of, *Klosinski, Leonard F. and Smolarski, Dennis C.* 42 (1969) 208-210.
Digits. The Occurrence of, *Wagner, F.J.* 37 (1964) 177-178.
Dihedral Group of Linear Transformations in the Plane. The, *Lundberg, G.H.* 41 (1968) 206-210.
Dihedral Group. The Subgroups of the, *Cavior, Stephan R.* 48 (1975) 107.
Dimension. Spaceland as Viewed Informally from the Fourth, *Jacobson, R.A.* 40 (1967) 174-178.
Dimension Under Analytic Maps. *Speck, G. P.* 42 (1969) 91-93.
Dimensional Analysis and Homogeneous Functions. *Wilansky, Albert.* 30 (1957) 154-155.
Dimensional Homogeneity. Differential Equations Exhibiting, *Krick, M.S.* 33 (1959) 99-102.
Dini's Theorem. A Note on, *Mong, Shaw.* 38 (1965) 107-108.
Diophantine Analysis. Congruence Methods as Applied to, *Vandiver, H.S.* 21 (1948) 185-192.
Diophantine] Egg Problem. The [, *Bissinger, B.H.* 28 (1955) 177-182.
Diophantine Equation. A Note on a, *Aucoin, A.A.* 14 (1940) 459-460.
Diophantine Equation $Ax^2 + y^2 = z^2$. A Note on the, *Erskine, William H.* 14 (1940) 311-312.
Diophantine Equation. A Solvable, *Wildberger, Norman.* 49 (1976) 200-201.
Diophantine Equation] $dy^2 + 1 = x^2$. A Recurrence Formula Solution to [the, *Deemer, Bob.* 32 (1958) 37-40.
Diophantine Equation in Two Unknowns. The Linear, *Thomas, Joseph Miller.* 24 (1950) 59-64.
Diophantine] Equation $x^a + y^b = z^c$. On Solutions of the [, *Liff, Allan I.* 41 (1968) 174-175.
Diophantine Equation $X^3 + Y^3 = 9Z^3$. The, *Hunter, J.A.H.* 38 (1965) 305-306.
Diophantine Equations. Jacobi's Solution of Linear, *Waterman, M.S.* 48 (1975) 159-163.
Diophantine Equations. Linear, *Brown, Arthur B.* 31 (1958) 215-220.
Diophantine Equations. On Cubic, *Parker, W. Vann and Aucoin, A.A.* 13 (1938) 115-117.
Diophantine Equations. On the Elementary Approach to, *Gross, Oliver.* 34 (1961) 259-267.
Diophantine Equations. Parametric Solutions of Certain, *Thompson, Ronald B.* 8 (1933) 58-60.
Diophantine Equations. Some Fifth Degree, *Utz. W.R.* 38 (1965) 161-163.
Diophantine] Problem. A New Look at an Old [, *Wingo, Charles E., Jr.* 32 (1959) 275-276, 288; *Comment* 33 (1960) 221-224.
Dips by Seismic Methods. Maximum, *Funkenbusch, William W.* 19 (1945) 171-172.
Direct Attack on a Birthday Problem. A, *Goldberg, Samuel.* 49 (1976) 130-131; *Comments* 49 (1976) 259; 50 (1977) 174.
Direct Derivation of the Equation of the Director Circle of an Ellipse. A, *Rajagopal, A.K.* 30 (1957) 158-159; *Comment* 31 (1958) 157.
Direct Proof of the Steiner-Lehmus Theorem. A, *Malešević, Jovan V.* 43 (1970) 101-102.
Directional Derivative. Teaching the Concept of, *Olds, Edwin G.* 10 (1936) 268-275.
Directional Derivatives. A Note on One-Sided, *Friedlen, D.M. and Nashed, M.Z.* 41 (1968) 147-150.
Director Circle of an Ellipse. A Direct Derivation of the Equation of the, *Rajagopal, A.K.* 30 (1957) 158-159; *Comment* 31 (1958) 157.
Dirichlet. Notes on Lejeune, *Dunnington, G. Waldo.* 12 (1938) 171-182.
Dirichlet Problem. A, *Edstrom, Clarence R.* 45 (1972) 204-205.
Dirichlet Problem. Numerical Analysis and the, *Greenspan, Donald.* 32 (1959) 177-188.
Discipline. On Teaching Mathematics for, *Webber, W. Paul.* 7:1 (1932) 10-14; *Sequel* 7:2 (1932) 7-8.
Discontinuities in Compressible Fluid Flow. *Coburn, N.* 27 (1954) 245-264.
Discount of 1% per Month. The Effective [Interest] Rate Corresponding to a, *Nichols, Irby C.* 6:5 (1932) 25-28.
Discovery of Quaternions. Hamilton's, *van der Waerden, B.L.* 49 (1976) 227-234.
Discovery of the Logarithmic Series and Its Developments in England up to Cotes. On the, *Hofmann, Josef Ehrenfried.* 14 (1939) 37-45.
Discriminant of a Conic. On the, *Bell, Clifford.* 9 (1935) 142.
Discriminants. A Note on the Use of, *Horton, Robert E.* 23 (1950) 247-248.
Discussion [about Trigonometry]. A, *Smith, H.L.* 4:7 (1930) 14-15.
Discussion of the Methods of Science,

History, Art and Mathematics. A, *Miller, Walter M.* 10 (1936) 200-204.
Disjoint Triangles in Chromatic Graphs. *Moon, J.W.* 39 (1966) 259-261.
Dispersions. Elementary Concepts of Functional Means and, *Gill, John P.* 24 (1950) 65-75.
Disquisitiones Arithmeticae, and his Contemporaries in the Institut de France. Gauss, His, *Dunnington, G. Waldo.* 9 (1935) 187-192.
Dissection Problem. A, *Thomas, John.* 41 (1968) 187-190.
Distance Between Two Points on a Sphere. *Marcus, Curt F.* 37 (1964) 54.
Distance Formula and Conventions for Sign. The, *Mott, Thomas E.* 35 (1962) 39-42.
Distance Formula of Plane Analytics. A Note on a, *Smith, H.L.* 3:4 (1928) 19-21.
Distance from Line to Point. *Moore, Douglas H.* 38 (1965) 219-221.
Distance. Functions that Preserve Unit, *Greenwell, Donald and Johnson, Peter D.* 49 (1976) 74-79.
Distance Invariance. Characterizing Motions by Unit, *Bishop, Richard L.* 46 (1973) 148-151.
Distance of a Point From a Line. The, *Brown, T.A.* 37 (1964) 157-159.
Distance. Point To Line, *Ransom, William R.* 33 (1960) 218.
Distortion in Power-Law Devices. Harmonic, *Kaufman, H.* 28 (1955) 245-250.
Distribution of Digits in Integers. *Boas, Ralph P., Jr.* 50 (1977) 198-201.
Distribution of Errors for Agricultural Field Trials. Fundamental, *Baker, G. A.* 16 (1941) 7-19.
Distribution of Orders of Abelian Groups. *Kane, Jonathan M.* 49 (1976) 132-135.
Distribution of Quadratic Residues in Fields of Order p^2. The, *Bergum, G.E. and Jordan, J.H.* 45 (1972) 194-200.
Distribution of Quadratic Residues in Fields of Order P^2. The, *Hardman, N. R. and Jordan, J.H.* 42 (1969) 12-17; *Comment* 44 (1971) 241; *Sequel* 45 (1972) 194-200.
Distribution of the Median. A Note on the, *Paulson, Edward.* 14 (1940) 379-382.
Distribution. Ordinates for Student's, *Howell, John M.* 36 (1963) 255-256.
Distribution. Sprays and Cauchy's, *Wilkins, C.A.* 33 (1960) 261-264.
Distribution. The Transfer, *Freund, John E.* 25 (1951) 63-66.
Distributions. An Inequality for Conditional, *Johnson, B.R.* 47 (1974) 281-283.
Distributions and Their Associated Structures." Comment on the Paper "Some Probability, *Carlitz, Leonard.* 37 (1964) 51-52.
Distributions and Their Associated Structures. Some Probability, *Dilley, Norman R.* 36 (1963) 175-179, 227-231; *Comment* 37 (1964) 51-52.
Distributions. Grades and, *Rutt, Norman E.* 18 (1943) 120-126.
Divergent Series. A New General Method of Summing, *James, Glenn.* 22 (1949) 235-244.
Divisibility. An Algorithm on, *Draim, N. A.* 25 (1952) 191-194.
Divisibility by the Use of a Remainder Function. Test for, *Draim, N.A.* 31 (1958) 137-140.
Divisibility Rules by the Remainder Theorem. *Gaskell, Robert W.* 8 (1934) 81-86.
Division Algorithm. A, *Freitag, Herta Taussig and Freitag, Arthur H.* 37 (1964) 153-157.
Division Algorithm with Number Pairs. A, *Draim, N.A.* 28 (1955) 221-228.
Division of a Power Series by $(1-\alpha x)^n$. *Mazkewitsch, D.* 33 (1960) 291-293.
Division. On the French Method of Long, *Mitchell, B.E.* 26 (1953) 154.
Division Problem. A Note on the Fair, *Fink, A.M.* 37 (1964) 341-342.
Division Sums. Integrals and Equal, *Morduchow, Morris.* 27 (1953) 65-68.
Divisor: *see also* Greatest Common.
Divisor Functions. On, *Buschman, R.G.* 43 (1970) 276.
Divisors. Relatively Prime Amicable Numbers with Twenty-One Prime, *Hagis, Peter, Jr.* 45 (1972) 21-26.
Does Mathematics Work? *Nichols, Irby C.* 14 (1940) 298.
Domains: An Example. Non-Euclidean, *Singh, Sahib.* 49 (1976) 243.
Domains. Ideals in Commutative, *Sinha, I. and Srivastava, J.B.* 44 (1971) 124-127.
Domains of Dominance. *Hausman, Miriam.* 49 (1976) 92-94.
Domains. Two-Dimensional Lattices and Convex, *Reich, Simeon.* 43 (1970) 219-220.
Dominance. Domains of, *Hausman, Miriam.* 49 (1976) 92-94.
Dominance. Non-Transitive, *Tenney, Richard L. and Foster, Caxton C.* 49 (1976) 115-120.
Dominated Convergence Theorem. Weak Sufficient Conditions for Fatou's Lemma and Lebesgue's, *Van der Vaart, H.R. and Yen, Elizabeth H.* 41 (1968) 109-117.
Dominoes. Covering Deleted Chessboards with, *Singmaster, David.* 48 (1975) 59-66.
Don't Call it Science. *Foster, James E.* 26 (1953) 209-214; *Reply* 27 (1953) 43-45.
Doodling Problem Involving the Density of Segment-Generated Sets of Points

in Regions of a Plane. A, *Heacock, Larry.* 42 (1969) 60-66.
Dotson. On Analytic Functions Satisfying the Mean Value Theorem and a Conjecture of W.G., *Rubinstein, Zalman.* 42 (1969) 256-259.
Double Butterfly Theorem. A, *Jones, Dixon.* 49 (1976) 86-87.
Double False. The Rule of, *Bowie, Harold E.* 26 (1953) 269-272.
Drawing of Quadric Surfaces. The, *Little, Neil.* 14 (1940) 472-476.
Dual or Duo Variable [Analysis over Complex-like Rings]. Functions of a, *Deakin, Michael A.B.* 39 (1966) 215-219.
Duality and Differential Calculus in the Plane. *Hood, Rodney T.* 23 (1950) 235-243.
Duality in Spherical Triangles. *Klamkin, Murray S.* 46 (1973) 208-211.
Duality. Notes on the History of Geometrical Ideas. I: Homogeneous Coordinates; II: The Principle of, *Pedoe, Dan.* 48 (1975) 215-217, 274-277.
Duration in the Classical Ruin Problem. Conditional Expectation of the, *Stern, Frederick.* 48 (1975) 200-203.
Dürer] Octahedron. The Melancholy [, *Federico, P.J.* 45 (1972) 30-36; *Comment* 45 (1972) 280.
Dynamic Programming and "Difficult Crossing" Puzzles. *Bellman, Richard.* 35 (1962) 27-29.
Dynamic Programming Technique. The Shortest Connected Graph Through, *Garg, R. C.* 41 (1968) 170-173.
Dynamic Proofs of Euclidean Theorems. *Finney, Ross L.* 43 (1970) 177-185.
Dynamics. Geometric Theorems in, *Kasner, Edward and De Cicco, John.* 22 (1949) 223-233.

E

e and Its Approximation. On, *Lubin, C.I. and Macintyre, A.J.* 43 (1970) 98-101.
e Can Justly be Called Natural Logarithms. Why Logarithms to the Base, *Evans, John Ellis.* 14 (1939) 91-95.
e. Geometric Approximations for, *Buckholtz, J.D.* 47 (1974) 138-143.
e. Rational Approximations of, *Trigg, Charles W.* 35 (1962) 38, 54.
e. The Ubiquitous. *Sawtelle, Peter G.* 49 (1976) 244-245.
e and π+e Are Algebraic. A Proof that Not Both π, *Brubaker, David A.* 44 (1971) 267.
Early American Arithmetics. *Sleight, E.R.* 10 (1935) 9-12.
Early English Arithmetics. *Sleight, E.R.* 16 (1942) 198-215, 243-251.
Early Sundials and the Discovery of the Conic Sections. *Dolan, W.W.* 45 (1972) 8-12.
Early Training of Mathematical Research Workers. The, *Sawyer, W.W.* 25 (1952) 226-228.
Easy Method for Drawing Curves in Polar Coordinates. An, *Bettinger, A.K.* 11 (1937) 327-331.
Easy Way From a Point to a Line. An, *Eisenman, R.L.* 42 (1969) 40-41.
Eccentricity. Ellipse of Least, *Jones, Roger D.H.* 44 (1971) 216-217.
Eccentricity. Ellipse of Least, *Vinh, N. X.* 39 (1966) 203-205.
Eccentricity in Ellipses. *Kenna, L.A.* 32 (1959) 133-135.
Eccentricity. Relation Between Correlation and, *Bleick, W.E.* 43 (1970) 149-150.
Economic Traversal of Labyrinths [and Graphs]. *Fraenkel, A.S.* 43 (1970) 125-130; *Correction* 44 (1971) 12.
Economics. A History of the Development of Mathematics in the Field of, *Shaw, Ida Bell.* 8 (1933) 31-37; 8 (1934) 128-131.
Economy of Symmetry. The, *McGiffert, James.* 12 (1938) 210-212.
Education]. A Worth While Experiment [in, *Clive, W.R.* 5:3 (1930) 6-8.
Education and in the Teaching of Mathematics. Next Steps in, *Betz, William.* 18 (1944) 153-176.
Education]. Apparently a Successful Presentation [: Arithmetic, *Coultrap, M. W.* 6:4 (1932) 9-11.
Education] as a Character Builder. Mathematics [, *New, I.C.* 8 (1933) 3-8.
Education] at Exeter. Mathematics [, *Barber, Harry C.* 4:7 (1930) 8-14.
Education]. Carry-Over [in, *Ault, John W.* 32 (1959) 264.
Education]. Children's Difficulties with Reasoning Problems [, *Roca, Lolita.* 5:1 (1930) 3-11.
Education]. Euclid, You Must Be Kidding [: Geometry, *Jenkins, Terry L.* 41 (1968) 34-37.
Education. Geometry in General, *Horton, Robert E.* 29 (1955) 41-44.
Education]. Introduction and Presentation of the Formula as the First Unit in Ninth Mathematics [: Algebra, *Riley, Martin S.* 7:1 (1932) 5-10.
Education. Liquor in, *Sturm, Isabel C.* 26 (1952) 44-45.
Education]. Mathematicians, Right or Left [in, *Emmons, C.H.* 9 (1935) 166-173.
Education]. More About Better Mathematics [, *Seidlin, Joseph.* 14 (1939) 96-99.
Education. Need for Studies in Mathematical, *Schaaf, William L.* 18 (1943) 27-31.
Education of Mathematics Teachers. The, *Schaaf, William L.* 13 (1938) 83-89.

Education] of Mathematics. The Transfer Value [in, *Shell, Lorraine.* 5:2 (1930) 10-13.
Education. Perversion of Purpose in Elementary Mathematical, *Schaaf, William L.* 19 (1945) 406-413.
Education]. Post-War Blueprint [for, *Dorwart, Harold L.* 19 (1945) 194-196.
Education. Post-War Planning for Mathematical, *Schaaf, William L.* 19 (1944) 147-149.
Education Proposed. A Science of, *Webber, W. Paul.* 8 (1934) 125-128.
Education]. Questions and Opinions [in, *Webber, W. Paul.* 4:7 (1930) 5-8.
Education. The Computer's Challenge to, *Hilberry, Clarence B.* 30 (1957) 149-153.
Education]. The Graphic Method of Problem Analysis [in, *Grehan, Carrie.* 4:1 (1929) 1-7.
Education. The Place of Mathematics in a Liberal, *Richardson, M.* 19 (1945) 349-358.
Education Toward Mathematics. The Attitude of the Louisiana State Department of, *Harris, T.H.* 5:4 (1930) 3-4.
Education. Trends in, *Robinson, P.G.* 17 (1943) 221-224.
Education]. Using the Mathematics News Letter [in, *Renaud, Marie Louise.* 8 (1934) 87-88.
Education]. Vitalizing Mathematics [, *Edington, Will E.* 12 (1937) 27-38.
Educational] Devil and the Deep Blue Sea. Between the [, *Seidlin, Joseph.* 30 (1957) 277-281.
Educational Generalists Versus Subject-Matter Specialists. *Forno, Dora M.* 4:8 (1930) 21-22.
Educational Interests of Teachers of College Mathematics. *Georges, J.S.* 16 (1941) 89-90.
Educational] Meaning and Use. Alligation --It's [, *Hills, E. Justin.* 27 (1953) 85-89.
Educational] Problems. The Freshman [, *O'Quinn, R.L.* 5:3 (1930) 2-5.
Educational] Progress. Student [, *Enser, Samuel S.* 31 (1958) 154-155.
Educational] Report on Homogeneous Grouping in Freshman Mathematics. A Preliminary [, *Seidlin, Joseph.* 7:7 (1933) 1-4.
Educational] Standards--For What? [, *Foster, James E.* 24 (1950) 38-41.
Educational] Standards: Sacred and Profane. High [, *Seidlin, Joseph.* 23 (1950) 189-192.
Effect of a Certain Weekly [Interest] Schedule at the Rate of One-Half of One Per Cent Per Week. The, *Samuels, E.S.* 7:1 (1932) 20-21.
Effective [Interest] Rate Corresponding to a Discount of 1% per Month. The, *Nichols, Irby C.* 6:5 (1932) 25-28.
Egg Problem. The [Diophantine], *Bissinger, B.H.* 28 (1955) 177-182.
Eggbeater. The Klein Bottle as an, *Brown, Richard L.W.* 46 (1973) 244-250.
Egyptian Fraction Expansions. *Cohen, Robert.* 46 (1973) 76-80.
Egyptians as Pure Mathematicians [History]. The, *Nichols, Irby C.* 3:8 (1929) 10-13.
Eight Blocks." More Progress to Madness via ", *Sobczyk, Andrew.* 47 (1974) 115-124.
Eight Blocks to Madness"--A Logical Solution [to the Puzzle]. ", *Kahan, Steven.* 45 (1972) 57-65; *Sequel* 47 (1974) 115-124.
18th-Century English Mathematical Manuscript. Notes on an, *Richeson, A.W.* 11 (1937) 221-230.
Eighteenth Century Sundial Design. The Ellipse in, *Dolan, W.W.* 45 (1972) 205-209.
Eighth Lesson in the History of Mathematics. A, *Miller, G.A.* 18 (1944) 261-270.
Eisenstein's Criterion. A Generalization of, *Chao, Howard.* 47 (1974) 158-159.
Electric and Magnetic Field. Electron Trajectories in a Combined, *Morris, Chester R.* 30 (1957) 251-267.
Electrical [Differential Equation] Problem. An, *Byrne, William E.* 7:7 (1933) 30-33.
Electrical Examples to Illustrate Stokes' Theorem. Some, *Reid, Walter P.* 32 (1958) 87-92.
Electron Trajectories in a Combined Electric and Magnetic Field. *Morris, Chester R.* 30 (1957) 251-267.
Electrons. Cycloidal Motion of, *Rauch, S. E.* 26 (1953) 255-262.
Elementary Analysis of the Factorization of Integers and the Determination of Primes by the Use of Integral Binary Quadratic Forms. An, *Christilles, William Edward.* 36 (1963) 31-35; *Correction* 37 (1964) 32.
Elementary Approach to Diophantine Equations. On the, *Gross, Oliver.* 34 (1961) 259-267.
Elementary Approach to the Use of the Rate of Change Concept for Solving Problems. An, *Coffman, Raphael T.* 30 (1956) 81-90.
Elementary Concepts of Functional Means and Dispersions. *Gill, John P.* 24 (1950) 65-75.
Elementary Derivation of the Cauchy, Hölder, and Minkowski Inequalities from Young's Inequality. An, *Tolsted, Elmer.* 37 (1964) 2-12.
Elementary Differential Equations. *Hyers, D.H.* 23 (1950) 193-204.
Elementary Evaluation of $\zeta(2n)$. *Berndt, Bruce C.* 48 (1975) 148-154.

Elementary Example of a Transcendental p-adic Number. An, *Suter, Glen H.* 49 (1976) 42.
Elementary Inequalities for Integrals. *Eliezer, C.J.* 45 (1972) 89-91.
Elementary Introduction to the Calculus of Variations. An, *Hestenes, Magnus R.* 23 (1950) 249-267.
Elementary [Logarithm] Inequality. On an, *Kai-Meng, Chan.* 42 (1969) 240.
Elementary Mathematical Education. Perversion of Purpose in, *Schaaf, William L.* 19 (1945) 406-413.
Elementary Mathematics by Means of Fundamental Concepts. Unifying, *Charosh, Mannis.* 19 (1944) 78-90.
Elementary Mathematics. How Modern Mathematical Concepts Shed Light on, *Andree, Richard V.* 28 (1955) 173-176.
Elementary Observations Concerning Euler's Prime Generating Polynomial $f(n) = n^2 - n + 41$. *Kravitz, Sidney.* 35 (1962) 152; *Sequel* 36 (1963) 313-314.
Elementary Proof of a Theorem of Herstein. An, *Luh, Jiang.* 38 (1965) 105-106.
Elementary Proof of Jackson's Theorem on Mean-Approximation. An, *Cheney, E.W.* 38 (1965) 189-191.
Elementary Properties of the Fundamental Solution of Parabolic [Differential] Equations. Some, *Guenther, Ronald.* 39 (1966) 294-298.
Elementary Properties of the Relation, Congruence, Modulo M. Some, *Diamond, Louis E.* 28 (1955) 213-220; *Comment* 29 (1956) 206-207.
Elementary Standpoint. Advanced Mathematics From an, *Spiegel, Murray R.* 23 (1950) 244-246.
Elementary Symmetric Functions. Remarks on the, *Ellis, David.* 32 (1958) 75-78.
Elementary Theory of Numbers. The, *Bell, E.T.* 23 (1949) 45-51.
Elementary Transcendental Functions. *Speck, G.P.* 42 (1969) 200-202.
Elements at Infinity in Projective Geometry. *Court, Nathan Altshiller.* 19 (1944) 141-146.
Elements of a Mathematical Theory of Probability. *Curtiss, J.H.* 26 (1953) 233-254.
Elephantine" Equation. An ", *Naranan, S.* 46 (1973) 276-278.
Eleventh Lesson in the History of Mathematics. A, *Miller, G.A.* 21 (1947) 48-55.
Ellipse. A Direct Derivation of the Equation of the Director Circle of an, *Rajagopal, A.K.* 30 (1957) 158-159; *Comment* 31 (1958) 157.
Ellipse as an Hypotrochoid. The, *Pedoe, Dan.* 48 (1975) 228-230.
Ellipse. Construction of Two-Center, *Gwinner, Harry.* 3:1 (1928) 19-20.
Ellipse Construction Shortcuts. *Elrod, S. B.* 26 (1952) 97-99.
Ellipse, Given a Pair of Semi-Conjugate Diameters. Construction of the Position and Extent of the Axes of an, *Mills, C.N.* 26 (1953) 227-228.
Ellipse in Eighteenth Century Sundial Design. The, *Dolan, W.W.* 45 (1972) 205-209.
Ellipse Inequality. An, *Klamkin, Murray S. and McLenaghan, R.G.* 50 (1977) 261-263.
Ellipse of Least Eccentricity. *Jones, Roger D.H.* 44 (1971) 216-217.
Ellipse of Least Eccentricity. *Vinh, N.X.* 39 (1966) 203-205.
Ellipse. On Brocard's, *Cavallaro, Vincenzo.* 14 (1940) 445-448.
Ellipses. Eccentricity in, *Kenna, L.A.* 32 (1959) 133-135.
Ellipses Inside Triangles. On "Rotating," *Evans, Leonard.* 44 (1971) 28-33.
Ellipsograph. An, *Yates, Robert C.* 12 (1938) 213-215.
Elliptic and Hyperbolic Segments. An Inequality for, *Golomb, Michael and Haruki, Hiroshi.* 46 (1973) 152-155.
Elliptic Cubic. A Certain Geometrical Calculus by Van Der Waerden in Connection with the, *Emch, Arnold.* 14 (1940) 439-442.
Elliptic Functions. Some Nonlinear Differential Equations Satisfied by the Jacobian, *Soudack, A.C.* 37 (1964) 138-147.
Elliptic Functions to Certain Problems in Plane Cubics. Application of, *Daniells, Marian E.* 10 (1936) 127-133.
Elliptic Motion. A Study of the Angular Velocity About a Point Between the Foci in Keplerian, *Keller, M. Wiles.* 12 (1937) 13-20.
Elliptic Plane. Conic Sections in the, *Goodner, Dwight B.* 34 (1960) 81-94.
Emissions. A Postulational Treatment of the Probability for Certain Types of, *Kalinowski, Walbert C. and Regan, Francis.* 25 (1952) 175-181.
Energy. A Mathematical Support for the Theory of the Conservation of, *Neelley, J.H.* 19 (1945) 283-285.
Engel Curves. Theory of Budgets Based on Parabolic, *Baker, G.A.* 26 (1952) 67-70.
Engine Geometry. Rotary, *Nash, David H.* 50 (1977) 87-89.
Engineering. Automatic Computation as an Aid in Aeronautical, *Lowe, John.* 25 (1951) 37-42.
Engineering Curriculum. Mathematics and the, *Gunder, Dwight F.* 15 (1941) 419-422.
Engineering Curriculum. Mathematics in the, *Horton, Robert E.* 32 (1959) 137-149.

Engineering Problems. Quadratic Equations in, *Reese, Raymond C.* 18 (1943) 99-105.
Engineers. Conformal Transformation Charts Used by Electrical, *Mathis. H. F.* 36 (1963) 25-30.
England up to Cotes. On the Discovery of the Logarithmic Series and Its Developments in, *Hofmann, Josef Ehrenfried.* 14 (1939) 37-45.
English Arithmetics. Early, *Sleight, E.R.* 16 (1942) 198-215, 243-251.
English Mathematical Manuscript. Notes on a 17th-Century, *Richeson, A.W.* 11 (1937) 165-171.
English Mathematical Manuscript. Notes on an 18th-Century, *Richeson, A.W.* 11 (1937) 221-230.
Entrance Requirements and Their Effect Upon Mathematics in the High School. *Sleight, E.R.* 10 (1936) 241-246.
Enumeration Formula by Example. Pólya's, *Tucker, Alan.* 47 (1974) 248-256.
Enumeration of the Rational Points Between 0 and 1. *Godfrey, Edwin L.* 12 (1938) 163-166.
Envelope--Cuspidal and Nodal Loci. Differential Equations with Quadrilateral, *Henderson, Archibald.* 20 (1945) 51-68.
Envelopes Associated with a One-Parameter Family of Straight Lines. *Montague, Harriet F.* 13 (1938) 73-75.
Envelopes in n-Space. Sufficient Conditions for, *Brown, Arthur B.* 37 (1964) 227-229.
Envelopes. Note on Certain, *Foster, Malcolm.* 27 (1954) 268-273.
Envelopes of Certain Trigonometric Polynomials. Concerning, *Whiteman, Russell A.* 38 (1965) 19-22.
Epiphanius. On Measures and Weights by, *Shaw, Allen A.* 11 (1936) 3-7.
Equal Initial Fortunes. The Classical Ruin Problem with, *Samuels, S.M.* 48 (1975) 286-288.
Equality. A Rectified, *Trigg, Charles W.* 34 (1961) 163-164.
Equation: *see also* Algebraic, Cubic, Difference, Differential, Diophantine, Functional, Parametric, Quadratic.
Equation. An "Elephantine," *Naranan, S.* 46 (1973) 276-278.
Equation $f'(x) = f(x + a)$. A Note on the Solutions of the, *Green, John W.* 26 (1953) 117-120.
Equation $n^2 + n = 1 = p^r$. A Note on the, *Burling, James P. and Keiser, Victor H.* 37 (1964) 339-340.
Equation of a Sphere. The, *Klamkin, Murray S.* 42 (1969) 241-242.
Equation of the Second Degree. The General, *Williams, K.P.* 16 (1941) 37-43.
Equation $\phi(x) = k$. The, *Mendelsohn, N.S.* 49 (1976) 37-39.
Equation] $x^y = y^x$. The Real Solutions of [the, *Beardon, A.F.* 39 (1966) 108-111.
Equations. A Note to the Theory of, *Aude, H.T.R.* 14 (1940) 308-310.
Equations. A Queer Set of, *Ransom, William R.* 22 (1949) 165.
Equations and Inequalities. A Note on, *Small, William A.* 34 (1961) 283-284.
Equations by Simple Continued Fractions. The Approximation of Real Roots of, *Garver, Raymond.* 7:2 (1932) 20-22.
Equations. Evaluation of Real Roots by Means of Lower Degree, *James, Glenn.* 19 (1945) 375-384.
Equations." Foot-Notes to the Chapter on "Theory of, *Starke, Emory P.* 14 (1940) 408-411.
Equations Invariant under Root Powering. *Finan, E.J. and McRae, V.V.* 29 (1947) 29-34.
Equations, Matrices and Determinants. Systems of, *Taussky, Olga and Todd, John.* 26 (1952) 9-20, 71-88.
Equations. Nested Series, Computation of Square Roots and Solution of Third Degree, *Sarafyan, Diran.* 27 (1953) 19-36.
Equations. Operational, *Bateman, H.* 9 (1935) 197-201.
Equations. Some Types of Elementary, *Denbow, Carl H.* 23 (1950) 137-141.
Equations. The Dialytic Method for Solving Simultaneous, *Miser, Wilson L.* 7:2 (1932) 16-20.
Equations. The Solution of Numerical, *Bell, Clifford.* 14 (1940) 435-438.
Equilibrium of Awareness). Optimum Selection and Optimum Registration [, *Pikler, Andrew.* 24 (1951) 175-189.
Equilong Geometries. General Comparison of Conformal and, *De Cicco, John.* 16 (1942) 275-279.
Equilong Geometry of Third Order Differential Elements. *De Cicco, John.* 19 (1945) 276-282.
Equipartition of Convex Sets. *Buck, R.C. and Buck, Ellen F.* 22 (1949) 195-198.
Equivalence of Completeness and Semicompleteness for Integer Sequences. On the, *Brown, J.L., Jr.* 36 (1963) 224-226.
Equivalence of Extension Fields. *Parry, Charles J. and Perin, David.* 50 (1977) 36-38.
Equivalence of Five Theorems in Analysis. A Note on the, *Kupperman, Robert H. and Smith, Harvey A.* 43 (1970) 81-82.
Equivalence Relations. Subgroups and, *Malraison, Pierre J., Jr.* 50 (1977) 205-208.
Equivalence Symbol and Parentheses Symbols in Associative Distributive Algebra. On the Use of the, *Vandiver, H. S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Error of the Standard Error of Estimate. The Standard, *Baten, William Dowell.* 16 (1942) 183-185.

Errors for Agricultural Field Trials. Fundamental Distribution of, *Baker, G.A.* 16 (1941) 7-19.
Errors in Algebra. Some Common, *Webber, W. Paul.* 4:1 (1929) 9-12.
Escalating Integrals. *Labelle, Gilbert.* 38 (1965) 168.
Escalator and Kummer Numbers] by P.A. Piza. Comment on Two Papers [, *Becker, H.W.* 22 (1949) 213-214.
Escalator Numbers. *Piza, Pedro A.* 21 (1947) 91-93.
Estimate. The Standard Error of the Standard Error of, *Baten, William Dowell.* 16 (1942) 183-185.
Euclid and Infinity. *Sanders, S.T.* 4:7 (1930) 15-22.
Euclid. Generalizations of, *Nichols, Irby C.* 2:4 (1928) 11-15.
Euclid. The Sources of, *Rutt, Norman E.* 11 (1937) 374-381.
Euclid, You Must Be Kidding [: Geometry Education]. *Jenkins, Terry L.* 41 (1968) 34-37.
Euclidean Concomitants of the Triangle. *Wade, T.L.* 17 (1943) 335-340.
Euclidean Constructibility in Graph-Minimization Problems. *Cockayne, E. J. and Melzak, Z.A.* 42 (1969) 206-208.
Euclidean Fragment of the Elements. A Pre-, *Shaw, Allen A.* 13 (1938) 76-82.
Euclidean Geometry. Another, *Dence, Thomas P.* 47 (1974) 125-132.
Euclidean Geometry. Projective Methods in, *Schuster, Seymour.* 36 (1963) 81-83.
Euclidean Geometry. The Most "Elementary" Theorem of, *Pedoe, Dan.* 49 (1976) 40-42; *Comment* 49 (1976) 261.
Euclidean Plane Meet in 2 Points Then They Meet in at Least n-1 Points. If n Lines in the, *Pavlick, Frank.* 46 (1973) 221-223.
Euclidean Principal Ideal Domains. Note on Non-, *Williams, Kenneth S.* 48 (1975) 176-177.
Euclidean Ring. A Principal Ideal Ring That is Not a, *Wilson, Jack C.* 46 (1973) 34-38.
Euclidean Theorems. Dynamic Proofs of, *Finney, Ross L.* 43 (1970) 177-185.
Euclidean Tools. Approximate Trisection of an Angle with, *Chen, Tzer-Lin.* 39 (1966) 261-264.
Euclidean Tools. Proof of the Impossibility of Trisecting an Angle with, *Chen, Tzer-Lin.* 39 (1966) 239-241.
Euclid's Algorithm. A Note on, *Lee, Yong-Jeng.* 42 (1969) 39-40.
Euclid's Algorithm and its Applications. *Clair, Harry S.* 28 (1954) 71-82.
Euclid's Algorithm. Properties of a Game Based on, *Spitznagel, Edward L., Jr.* 46 (1973) 87-92.
Euclid's Type. On the Proof that all Even Perfect Numbers are of, *McDaniel, Wayne L.* 48 (1975) 107-108.
Euler and Möbius Functions. The Definitions of the, *Cohen, Eckford.* 38 (1965) 14-17.
Euler Expression for] e^{ia}. Classroom Note on [the, *Pritchett, J.* 37 (1964) 82.
Euler. Fermat and, *McGiffert, James.* 9 (1934) 68-69.
Euler-Fermat Theorem. A "Good" Generalization of the, *Osborn, Roger.* 47 (1974) 28-31.
Euler Line. A Locus Related to the, *Crain, Karleton W.* 17 (1943) 163-164.
Euler ϕ-Function. A Generalized, *Cohen, Eckford.* 41 (1968) 276-279.
Euler Polynomials. The Multiplication Formulas for the Bernoulli and, *Carlitz, Leonard.* 27 (1953) 59-64.
Euler. The Orthic Triangle and an Inequality of, *Chakerian, G.D.* 46 (1973) 219-220.
Eulerian Numbers and Polynomials. *Carlitz, Leonard.* 32 (1959) 247-260.
Eulerian Polynomials. The Product of Two, *Carlitz, Leonard.* 36 (1963) 37-41.
Euler's Formula] $e^{i\phi} = \cos\phi + i \sin\phi$, A New Look at [, *Albaugh, Henry.* 34 (1961) 285-288.
Euler's Limit From a Well Known Physical Principle. A Proof of, *Shafer, Robert E.* 32 (1959) 211-212.
Euler's ϕ-Function. A Note on, *Verma, Sadanand.* 38 (1965) 208-211.
Euler's Prime Generating Polynomial $f(n) = n^2 - n + 41$. Elementary Observations Concerning, *Kravitz, Sidney.* 35 (1962) 152; *Sequel* 36 (1963) 313-314.
Euler's Relation in the Triangle. A Generalization of, *Goormaghtigh, R.* 15 (1941) 230-231.
Evaluation of a Certain Double Integral. An, *Garver, Raymond.* 8 (1933) 38-40.
Evaluation of a Limit by a Sequence of Triangles. *Springer, C.E.* 18 (1944) 185-187.
Evaluation of Certain Classes of Infinite Numerical Series in Closed Form. *Fain, Bill W.* 26 (1953) 121-126.
Evaluation of Determinants by Congruences. *Valyocsik, Ernest W.* 34 (1961) 218-220.
Evaluation of Double Integrals By Means of the Definition. *Lindstrom, Peter A.* 43 (1970) 85-89.
Evaluation of Infinite Integrals by Heaviside Operators. *Thomson, J.F.* 15 (1941) 173-176.
Evaluation of Instruction. Types of Learning Products of, *Georges, J.S.* 16 (1941) 90-101.
Evaluation of Real Roots by Means of Lower Degree Equations. *James, Glenn.* 19 (1945) 375-384.
Evaluation of Summations With Binomial

Coefficients. The, *Nowlan, F.S.* 34 (1961) 161-163.
Evaluation of $\zeta(2n)$. Elementary, *Berndt, Bruce C.* 48 (1975) 148-154.
Evaluation. The Use of Index Numbers in, *Erskine, William H.* 16 (1942) 252-258.
Even Powers. Proof of [Fermat's Last Theorem] for All, *Becker, H.W.* 28 (1955) 297-298.
Evolution of Securities. The, *Forno, Dora M.* 5:5 (1931) 12-14.
Exact Differential Equations of the First Order. A Note on, *Fung, Philip.* 38 (1965) 131-132.
Exact Perimeter Inequality for the Pedal Triangle. An, *Zirakzadeh, A.* 39 (1966) 96-99.
Exact Solutions of Flow Equations in a Compressible Imperfectly Viscous Fluid with Particular Conditions. On Certain Cases of Simple, *Krzywoblocki, M.Z.* 22 (1949) 111-123.
Examination. The Qualifying, *Roth, Richard.* 38 (1965) 166-167.
Examinations. An Experiment in Selecting Students According to Ability and Measuring Their Achievement by Common, *Harper, Floyd S.* 19 (1944) 27-32.
Examinations in Mathematics. Pre-Study, *Cox, H.M.* 17 (1943) 351-359.
Example in Functional Equations. An, *Steinberg, R.* 29 (1956) 129-130.
Examples Illustrating Continuity and Differentiability. Some, *Raisbeck, Gordon.* 23 (1949) 17-22.
Exercise in Vector Identities. An, *Givens, Clark.* 43 (1970) 153-154.
Exeter. Mathematics [Education] at, *Barber, Harry C.* 4:7 (1930) 8-14.
Exhibits in Mathematics. On, *Renaud, Marie Louise.* 7:4 (1933) 9.
Existence of Absolute Primes. On the, *Bhargava, T.N. and Doyle, P.H.* 47 (1974) 233.
Existence of Finite Bolyai-Lobachevsky Planes. The, *Heath, Steven H.* 43 (1970) 244-249.
Existence of Integers less than p belonging to $ep^{r-1} \pmod{p^r}$. The, *Maxfield, John E. and Maxfield, Margaret W.* 33 (1960) 219-220.
Existence of the Derivative of the Inverse Function. The, *Starr, Norton.* 44 (1971) 189-190.
Existence Theorems. *Haggerty, Thomas P.* 37 (1964) 50.
exp and log in Elementary Calculus. On, *Lightstone, A.H.* 36 (1963) 17-23.
Expanding Universe. The, *Nassau, J.J.* 8 (1933) 56-58.
Expansion of a Function in Terms of Exponentials. *Merrill, Lynn L.* 11 (1936) 78-84.
Expansion of Third Order Determinants, An. *Trigg, Charles W.* 35 (1962) 234.
Expansion Problem. A Contour Integral and First Order, *Doole, H.P.* 20 (1945) 79-85.
Expansions in Number Theory. Some, *Scholomiti, N.C.* 35 (1962) 79-85.
Expansions Involving Differential Equations in Which the Coefficient of a Parameter Changes Sign. *Camp, Chester C.* 12 (1938) 216-222.
Expectation of the Duration in the Classical Ruin Problem. Conditional, *Stern, Frederick.* 48 (1975) 200-203.
Experience. Mathematics As a Personal, *Boyd, Paul P.* 10 (1936) 157-164.
Experiment in Cooperative Teaching. An, *Weaver, J.H.* 11 (1937) 268-273.
Experiment in Selecting Students According to Ability and Measuring Their Achievement by Common Examinations. An, *Harper, Floyd S.* 19 (1944) 27-32.
Experimental Results on the Goldbach Conjecture. New, *Stein, M.L. and Stein, P.R.* 38 (1965) 72-80.
Explicit Expression for Binary Digital Sums. An, *Trollope, J.R.* 41 (1968) 21-25.
Explicit Formula for the kth Prime Number. An, *Regimbal, Stephen.* 48 (1975) 230-232; *Comment* 49 (1976) 50.
Explicit Solutions of Some Trinomial Equations in Terms of the Maximum Operation. On, *Bellman, Richard.* 30 (1956) 41-44.
Exponential and Logarithmic Functions. Off the Beaten Path with Some Differentiation Formulas for the Trigonometric, *Eaves, James Clifton.* 26 (1953) 147-152.
Exponential Functions. Newtonian Analogues of the Trigonometric and, *Fort, Tomlinson.* 40 (1967) 5-12.
Exponential Representation of Unitary Matrices. The, *Rinehart, R.F.* 37 (1964) 111-112.
Exponentials. Expansion of a Function in Terms of, *Merrill, Lynn L.* 11 (1936) 78-84.
Exponents, and Powers. Fractional Indices, *Boyer, Carl B.* 18 (1943) 81-86.
Exposition. Some General Remarks Concerning Scientific, *Langer, Rudolph E.* 9 (1934) 12-18, 42-46.
Expressing One as a Sum of Odd Reciprocals. *Barbeau, E.J.* 49 (1976) 34; *Comment* 49 (1976) 103, 155-156.
Expression $\Sigma(x_i/a_i)^{2n_i}$ = Constant. Remarks on the, *Allard, Jacques.* 36 (1963) 254-255.
Extendapawn--An Inductive Analysis. *Brown, John R.* 38 (1965) 286-299.
Extended Mean Value Theorem. An, *Goodner, Dwight B.* 36 (1963) 15-16.
Extended Topology: The Continuity Concept. *Hammer, Preston C.* 36 (1963) 101-105.

Extension Fields. Equivalence of, *Parry, Charles J. and Perin, David.* 50 (1977) 36-38.
Extension of a Mean Value Theorem. An, *Russell, A.M.* 42 (1969) 124-126.
Extension of a Rectangular Matrix of Continuous Functions. The, *Mathis, H.F.* 25 (1951) 3-6.
Extension of "An Approximation for any Positive Integral Root." An, *Romer, Eugene M.* 37 (1964) 187-192.
Extension of an Elementary Theorem [L' Hôpital's Rule] in Calculus. An, *Reed, Kennard W., Jr.* 42 (1969) 266.
Extension of Brocard Geometry. An, *Sidenblad, Paul.* 47 (1974) 159-161.
Extension of Feuerbach's Formula. *Dapkus, Frank.* 40 (1967) 267-268.
Extension of Morley's Theorem. An, *Spickerman, W.R.* 44 (1971) 191-192.
Extension of Pascal's Theorem." Note on "The, *Maley, C.E.* 35 (1962) 109.
Extension of Pascal's Theorem. The, *Maley, C.E.* 34 (1961) 289-292.
Extension of the Butterfly Problem. An, *Klamkin, Murray S.* 38 (1965) 206-208; *Sequels* 42 (1969) 17-21, 21-23; 46 (1973) 278, 280; 49 (1976) 86-87.
Extension of the Kuratowski Closure and Complementation Problem. An, *Chapman, Thomas A.* 35 (1962) 31-35.
Extension of the Mean-Value Theorem in E_n. An, *Lan, Chih-Chin.* 39 (1966) 91-93.
Extension of Trigg's Table. An, *Kravitz, Sidney and Penney, David E.* 48 (1975) 92-96.
Extensions of NIM. Some, *Schwartz, Benjamin L.* 44 (1971) 252-257.
Extensions of Some Geometric Inequalities. *Klamkin, Murray S.* 49 (1976) 28-30.
Extensions of the Weierstrass Product Inequalities. *Klamkin, Murray S. and Newman, D.J.* 43 (1970) 137-141.
Extensions on a Theme Concerning Conditionally Convergent Series. *Cerimele, B.J.* 40 (1967) 120-128.
Extensors and the Lagrangian Equations of Motion.' Comments on and additions to H.V. Craig's paper 'On, *Horton, C. W.* 23 (1949) 31-32.
Extensors and the Lagrangian Equations of Motion. On, *Craig, Homer V.* 22 (1949) 245-251.
Extensors in the Calculus of Variations. On, *Craig, Homer V.* 30 (1957) 175-191.
Exterior Ballistics. *Green, John W.* 25 (1951) 87-91.
Extra Dividends From a Calculus [Maximization] Problem. *Ogilvy, C. Stanley.* 41 (1968) 280-281.
Extrema in n-Variables. On, *Mott, Thomas E.* 37 (1964) 167-172.
Extrema of Polynomials. *Ralph P. Boas, Jr. and Klamkin, Murray S.* 50 (1977) 75-78.
Extremal Problem of Graphs with Diameter 2. An, *Bollobás, Béla and Erdös, Paul.* 48 (1975) 281-283.
Extremal Problems in Elementary Probability Theory. Some, *Paul, Jerome L.* 47 (1974) 79-84.
Extreme Problems. Constructions for Certain Circles of Curvature and Related, *Freitag, Herta Taussig and Freitag, Arthur H.* 40 (1967) 145-150.
Extremum Problems. Geometric, *Chakerian, G.D. and Lange, L.H.* 44 (1971) 57-69.

F

F-Values for Samples of Four and Four Drawn from Populations Which are the Sum of Two Normal Populations. *Baker, G.A.* 19 (1944) 62-63.
Faces. On Polyhedral, *Schwartz, Benjamin L.* 48 (1975) 289-290.
Fact About Falling Bodies. A, *Waterhouse, William C.* 44 (1971) 33-34.
Factor Groups. A General Isomorphism Theorem for, *Reed, Irving S.* 24 (1951) 191-194.
Factorable Determinants. *Bowman, K.O. and Shenton, L.R.* 45 (1972) 144-147.
factorable Polynomials. Certain Non-, *Holder, Doyne.* 31 (1957) 80.
Factorial]. A Note on N! [, *Maxfield, John E.* 43 (1970) 64-67.
Factorial Conjecture. A, *Tepper, Myron D.* 38 (1965) 303-304; *Sequel* 38 (1965) 304-305.
Factorial Conjecture. Proof of Tepper's, *Long, Calvin T.* 38 (1965) 304-305.
Factorial] n! Note on a Function Similar to [the, *de Koninck, Jean-Marie.* 47 (1974) 226.
Factorial Numbers. An Approximate Formula for Evaluating, *Town, George R.* 10 (1936) 259-267.
Factorials. A Generalised Form of a Theorem on Integer Quotients of Products of, *Horadam, E.M.* 36 (1963) 98-100.
Factorials of Their Digits. Integers and the Sum of the, *Poole, George D.* 44 (1971) 278-279; *Comment* 45 (1972) 278.
Factoring Functions. *Bodenrader, J.C.* 44 (1971) 77-81.
Factoring Integers Whose Digits Are All Ones. *Hayashi, Elmer K.* 49 (1976) 19-22.
Factoring] $x^{15} + 1$. [, *Anning, Norman.* 32 (1958) 97-98.
Factorization and Ideals. Integers, Unique, *Diamond, Louis E.* 30 (1956) 29-40.
Factorization and Lattice Points. Unique Prime, *De Boor, Carl and Schoenberg, I.J.* 46 (1973) 198-203.

Factorization in Connection with a Certain Determinant. Note on, *Sanders, S.T.* 3:8 (1929) 15-18.
Factorization of a Certain Symmetric Determinant of Order n. Concerning the, *Moritz, R.F.* 4:4 (1929) 9-11.
Factorization of Integers. A Note on the, *Christilles, William Edward.* 33 (1960) 283-286.
Factorization of Integers. A Simple Approach to the, *Christilles, William Edward.* 34 (1961) 411-416.
Factorization of Integers and the Determination of Primes by the Use of Integral Binary Quadratic Forms. An Elementary Analysis of the, *Christilles, William Edward.* 36 (1963) 31-35; *Correction* 37 (1964) 32.
Factorization of Linear Second Order Differential Operators. *Heinbockel, J.H.* 37 (1964) 302-304.
Factorization of [the Polynomial] $a^{2n} + a^n + 1$. *Salkind, Charles T.* 38 (1965) 163; *Sequel* 42 (1969) 41-42.
Factorization of $x^{2n}+x^n+1$ Using Cyclotomic Polynomials. *Tuckerman, Bryant.* 42 (1969) 41-42.
Factors of a Pair of Relatively Prime Amicable Numbers. On the Number of Prime, *Hagis, Peter, Jr.* 48 (1975) 263-266.
Factory Problem. A Geometrical Solution of the Three, *Van de Lindt, W.J.* 39 (1966) 162-165.
Factory Problem. The Three, *Greenberg, Irwin and Robertello, Raymond A.* 38 (1965) 67-72.
Fair Division Problem. A Note on the, *Fink, A.M.* 37 (1964) 341-342.
Fallacy. A Calculus, *Miller, K.W.* 41 (1968) 90-91.
Fallacy. An Induction, *Wilansky, Albert.* 39 (1966) 305.
Fallacy in Differentiability. A, *Wilansky, Albert.* 38 (1965) 108.
Fallacy? Where is the [Geometric], *Maizlish, I.* 4:2 (1929) 19-20.
Falling Bodies. A Fact About, *Waterhouse, William C.* 44 (1971) 33-34.
Falling Freely Within the Earth. On the Path of a Body, *Rickey, F.A.* 4:6 (1939) 15-18.
False. The Rule of Double, *Bowie, Harold E.* 26 (1953) 269-272.
Family of Curves. On a, *Parker, W. Vann.* 7:7 (1933) 29-30.
Family of Curves $z = (t - t^n)/2$. On the, *Sloyan, Sister M. Stephanie.* 32 (1962) 211-213.
Farewell to [the Number] 1955. *Gandhi, J. M.* 29 (1956) 198-199.
Farey Series. A Simple Proof of Aaron's Conjecture on the, *Hahn, Hwa S.* 40 (1967) 274.
Farey Series. Additive Entities, An Extension of, *Grant, Harold Sinclair.* 14 (1940) 256-260.
Fatou's Lemma and Lebesgue's Dominated Convergence Theorem. Weak Sufficient Conditions for, *Van der Vaart, H.R. and Yen, Elizabeth H.* 41 (1968) 109-117.
Fejér Summability. An Application of, *Straiton, A.W.* 18 (1943) 106-107.
Feld Series. On a Generalized, *Nedumpilly, Sister M. Redempta.* 35 (1962) 91-98.
Fermat and Euler. *McGiffert, James.* 9 (1934) 68-69.
Fermat Coefficients. *Piza, Pedro A.* 27 (1954) 141-146.
Fermat Equation] $A^k + B^k = C^k$ in Nonsingular Integral Matrices. Solutions of [the, *Gibson, P.M.* 43 (1970) 275-276.
Fermat Not Only a Problem of Algebraic Analysis but Also Probability Problem? The Last Theorem of, *Elston, Fred G.* 28 (1955) 150-152.
Fermat Theorem. A "Good" Generalization of the Euler-, *Osborn, Roger.* 47 (1974) 28-31.
Fermat's Conjecture. Some Results Pertaining to, *Simmons, G.J.* 39 (1966) 18-21.
Fermat's Equation of $A^p + B^p = C^p$ for Matrices of Integers. *Brenner, J.L. and De Pillis, J.* 45 (1972) 12-15.
Fermat's Integration of x^n. *Boyer, Carl B.* 20 (1945) 29-32.
Fermat's Last Theorem. A Classic Roadblock in Efforts to Prove, *James, Glenn.* 32 (1958) 101-102.
Fermat's Last Theorem? A "Converse" to, *Sesskin, Sam.* 35 (1962) 215-217.
Fermat's Last Theorem. A Remark on, *Mann, Louis S.* 28 (1955) 153-156.
Fermat's Last Theorem] for All Even Powers. Proof of [, *Becker, H.W.* 28 (1955) 297-298.
Fermat's Last Theorem for $n = 2(8a + 1)$. Proof of, *Griselle, Thomas.* 26 (1953) 263.
Fermat's Last Theorem for n = 6 and n = 10. A Simple Proof of, *Breusch, Robert.* 33 (1960) 279-281.
Fermat's Last Theorem. On the Case n = 3, of, *Piza, Pedro A.* 28 (1955) 157-158; *Comment* 29 (1956) 205-206.
Fermat's Last Theorem. On the Representation of a Possible Solution Set of, *Mifsud, Charles J.* 48 (1975) 174-176.
Fermat's Last Theorem [Part I]. Round Table on, *Heimann, Phil Heinrich and Elston, Fred G.* 28 (1954) 49-50.
Fermat's Last Theorem [Part II]. Round Table on, *Stone, D.E.* 28 (1955) 295-296; *Comment* 29 (1956) 123-124.
Fermat's Last Theorem. Round Table on, *Grey, L.D.* 27 (1954) 274-277.

Fermat's Last Theorem. Some Introductory Comments on, *James, Glenn.* 27 (1954) 213-216.
Fermat's Problem. A Variation of, *Brownawell, Dale and Goodman, Victor.* 38 (1965) 267-276.
Fermat's Problem on the Surface of a Sphere. On, *Cockayne, E.J.* 45 (1972) 216-219.
Fermat's Theorem. A Maximal Generalization of, *Singmaster, David.* 39 (1966) 103-107.
Feuerbach Theorem. Analytic Proof of the, *Stark, J.M.* 36 (1963) 122-125.
Feuerbach's Formula. Extension of, *Dapkus, Frank.* 40 (1967) 267-268.
Feuerbach's Theorem. A Proof of, *Venkatramaiah, S.* 38 (1965) 217-218.
Fibonacci Analogs of the Classical Polynomials. *Shannon, A.G.* 48 (1975) 123-130.
Fibonacci Fancy. *Brooke, Maxey.* 35 (1962) 218.
Fibonacci-Like Sequence of Composite Numbers. A, *Graham, R.L.* 37 (1964) 322-324.
Fibonacci Numbers. A Note on the Sequence of, *Stanley, T.E.* 44 (1971) 19-22.
Fibonacci Numbers. A Type of Periodicity for, *Hoggatt, Verner E., Jr.* 28 (1955) 139-142.
Fibonacci Numbers and the Q Matrix in Electrical Network Theory. The Appearance of, *Basin, S.L.* 36 (1963) 84-97.
Fibonacci Numbers Modulo a Prime P. Some Congruences of the, *Hoggatt, Verner E., Jr.* 47 (1974) 210-214.
Fibonacci Sequence. A Note on the Nth Term of the, *Just, Erwin.* 44 (1971) 199.
Fibonacci Sequences and A Geometrical Paradox. *Horadam, A.F.* 35 (1962) 1-11.
Fibonacci Sequences and a Geometrical Paradox. On, *Kumar, Santosh.* 37 (1964) 221-223.
Field. A Remark Concerning the Definition of a, *Lightstone, A.H.* 37 (1964) 12-13; *Sequels* 38 (1965) 94; 39 (1966) 161-162.
Field. An Additional Remark Concerning the Definition of a, *Malone, Joseph J., Jr.* 38 (1965) 94; *Sequel* 39 (1966) 161-162.
Field. Another Remark Concerning the Definition of a, *Vaughan, Herbert E.* 39 (1966) 161-162.
Field, Involving One Unknown. On Conditional Fractional Equations in a, *Vandiver, H.S.* 32 (1959) 173-176.
Fields. A Lattice of Cyclotomic, *Chalkley, Roger.* 48 (1975) 42-44.
Fields. Equivalence of Extension, *Parry, Charles J. and Perin, David.* 50 (1977) 36-38.
Fields of Order p^2. The Distribution of Quadratic Residues in, *Bergum, G.E. and Jordan, J.H.* 45 (1972) 194-200.
Fields of Order p^2. The Distribution of Quadratic Residues in, *Hardman, N.R. and Jordan, J.H.* 42 (1969) 12-17; *Comment* 44 (1971) 241; *Sequel* 45 (1972) 194-200.
Fields. Polynomials Over, *Oldenburger, Rufus.* 15 (1940) 3-26.
Fields. Subfields of Algebraically Closed, *Miller, Michael D. and Guralnick, Robert M.* 50 (1977) 260-261.
Fifteen Puzzle. A New Look at the, *Spitznagel, Edward L., Jr.* 40 (1967) 171-174.
15 Puzzle. Some Generalizations of the 14-, *Liebeck, Hans.* 44 (1971) 185-189.
Fifth Lesson in the History of Mathematics. A, *Miller, G.A.* 17 (1943) 212-220.
Figures. Significant, *Griffin, Carroll W.* 10 (1935) 20-24.
Finance. On the Simplification of Formulas in the Mathematics of, *Bell, Clifford.* 7:7 (1933) 21-23.
Finding a Pupil's Difficulties in Algebra. *Stone, John C.* 4:5 (1930) 5-9.
Finding Lost Objects. Search Theory: A Mathematical Theory for, *Stone, Lawrence D.* 50 (1977) 248-256.
Finding the Characteristics of Logarithms. On, *Mulcrone, T.F.* 29 (1956) 267.
Finding the Cube Root of Binomial Quadratic Surds. *Tan, Kaidy.* 39 (1966) 212-214.
Finding the Nth Root of a Number of Iteration. *Laufer, Henry.* 36 (1963) 157-162; *Comment* 36 (1963) 315-316.
Finding Truth in Lending. *Morrill, John E.* 50 (1977) 30-32.
Finesse at Bridge. *Sanders, S.T.* 6:4 (1932) 17-19.
Finite Bolyai-Lobachevsky Planes. The Connection of Block Designs with, *Spoar, G.* 46 (1973) 101-102.
Finite Bolyai-Lobachevsky Planes. The Existence of, *Heath, Steven H.* 43 (1970) 244-249.
Finite Boolean Rings. A Note on, *Smithson, R.E.* 37 (1964) 325-327.
Finite Differences and Computation of Polynomials. *De Greiff B., Luis.* 34 (1961) 401-405.
Finite Differences. Some Applications of, *Creely, Joseph W.* 26 (1953) 189-197.
Finite Differences. Some Operational Methods in the Calculus of, *Talacko, Joseph.* 31 (1957) 15-25.
Finite Differences. The Bernstein Polynomials and, *Groetsch, C.W. and King, J.T.* 46 (1973) 280-282.

Finite Groups Acting on Sets with Applications. *Shapiro, Louis W.* 46 (1973) 136-147.
Finite Groups Generated by Involutions on a Line. *Wayne, Alan.* 24 (1951) 249-251.
Finite Point [Plane] Geometries. Some, *Di Paola, Jane W.* 50 (1977) 79-83.
Finite Rings. On, *Peinado, Rolando E.* 40 (1967) 83-85; *Addendum* 40 (1967) 216.
Finite Sequence and a Card Trick. A, *Amir-Moéz, Ali R.* 30 (1957) 25-26.
Finite Set. On the Number of Subsets of a, *Greenstein, David S.* 43 (1970) 36.
Finite Sets. *Rubin, Jean E.* 46 (1973) 183-192.
Finite Sets and the Peano Postulates. On, *Kearns, D.A.* 32 (1959) 217-219.
Finite Sets. Homeomorphisms on, *Sharp, Henry, Jr.* 40 (1967) 152-156.
Finite Simple Groups. The Search for, *Gallian, Joseph A.* 49 (1976) 163-180.
Finite Subsets and Simple Closed Polygonal Paths. More on, *Gemignani, Michael C.* 39 (1966) 158-160.
Finite Subsets of the Plane and Simple Closed Polygonal Paths. On, *Gemignani, Michael C.* 39 (1966) 38-41.
Finite Surfaces: A Study of Finite 2-Complexes. *Whittlesey, E.F.* 34 (1960) 11-22, 67-80.
First College Course in Algebra. The, *Gorski, T.M. and Powers, William H.* 13 (1938) 34-36.
First Exercise on Differentials. *Longley, W.R.* 10 (1936) 219-226.
First Lesson in the History of Mathematics. A, *Miller, G.A.* 13 (1939) 272-277.
First Lessons in Geometry. The, *Riley, Martin L.* 6:5 (1932) 17.
First Printed Armenian Treatise on Arithmetic and Algebra. The, *Shaw, Allen A.* 11 (1936) 117-125.
First Printed Armenian Treatise on Geometry and Trigonometry. The, *Shaw, Allen A.* 10 (1936) 287-289.
First Two Chapters of Russell's Introduction to Mathematical Philosophy. On the, *Sanders, S.T.* 6:1 (1931) 18-21.
Five Requirements for Good Teaching. *Krathwohl, W.C.* 22 (1948) 47.
Fixed Point Criterion. An Iff, *Jungck, Gerald.* 49 (1976) 32-34; *Comment* 49 (1976) 259-260.
Fixed Point Theorem. A, *Fisher, B.* 48 (1975) 223-225.
Fixed Point Theorem for Compact Metric Spaces. On a, *Bennett, D.G. and Fisher, B.* 47 (1974) 40-41; *Comment* 48 (1975) 48.
Flight From Shock Recordings. Line of, *Reid, Walter P.* 41 (1968) 59-63.
Floating-Point' Chart for the Elementary Arithmetic Operations. An All-Purpose, ', *Wylie, C.R., Jr.* 43 (1970) 82-84.
Flow Equations in a Compressible Imperfectly Viscous Fluid with Particular Conditions. On Certain Cases of Simple Exact Solutions of, *Krzywoblocki, M.Z.* 22 (1949) 111-123.
Fluid Flow. Discontinuities in Compressible, *Coburn, N.* 27 (1954) 245-264.
Fluid with Particular Conditions. On Certain Cases of Simple Exact Solutions of Flow Equations in a Compressible Imperfectly Viscous, *Krzywoblocki, M.Z.* 22 (1949) 111-123.
Foci of the Conics on a Cone. *Miller, Robert C., Jr.* 30 (1957) 193-204.
Foot-Notes to the Chapter on "Theory of Equations." *Starke, Emory P.* 14 (1940) 408-411.
Form: *see also* Quadratic.
Form of a Ship. The, *Bateman, H.* 16 (1941) 141-149.
Form of Ratio Test. A Note on a, *Kung, S.H.L.* 41 (1968) 144-146.
Forms. The Representation of Integers in, *Hull, Ralph.* 14 (1940) 235-252.
Formula Concerning Twin Primes. A, *Kostis, Georgetta J. and Page, Robert L.* 37 (1964) 193-194.
Formula for Circular Permutations. On a, *Grant, Harold Sinclair.* 23 (1950) 133-136.
Formula for Cos nx. On a, *Makowski, Andrzej.* 35 (1962) 243-244.
Formula for Finding the Day of the Week, for Any Date in the Gregorian Calendar. *Hoeck, John.* 25 (1951) 55.
Formula for Sin(A+B). A Simple Proof of the, *Schaumberger, Norman.* 35 (1962) 229.
Formula for the Calculation of the Inertia Moment of Some Geometrical Solids. A, *Kefalas, Christos N.* 26 (1953) 265-269.
Formula for the nth Prime. A, *Towber, Jacob.* 23 (1949) 55-57.
Formula for [the Sum] $\sum_{x=1}^{x=n} x^p$. A, *Rosenbaum, J.* 14 (1940) 193-196.
Formula "$H_r^n = C_r^{n+r-1}$." How to Derive the, *Wang, Chung Lie.* 28 (1955) 271-273.
Formula of Hermite. Note on a, *Carlitz, Leonard.* 33 (1959) 7-11.
Formulas for a Curved Road Intersection. *Hickerson, T.F.* 36 (1963) 245-246.
Formulas for Square Roots. *Nytch, Stephan.* 30 (1957) 276.
Formulas of Oltramare. Some, *Carlitz, Leonard.* 27 (1954) 189-194.
Formulas Suitable for Machine Computation for the Mean, Standard Deviation, and Coefficient of Correlation for a Composite Group in Terms of Similar Indices of Its Subgroups. *Mills, C.N.* 15 (1941) 395-398.
Forum. Mathematics in the Open, *Sullivan, Sister Helen.* 18 (1944) 276-279.

Foundations of Operator Mathematics. *Hines, Jerome.* 25 (1952) 251-261; 28 (1955) 199-207; 29 (1955) 69-76.
Founding of Non-Euclidean Geometry. The, *Daus, P.H.* 7:7 (1933) 12-16.
Four Circle Inequality. A, *Sloss, James M.* 37 (1964) 327-330.
Four Color Problem. Solution of the, *Steen, Lynn A.* 49 (1976) 219-222; *Comment* 50 (1977) 173.
Four Color Problem; The Kempe Catastrophe. Remarks on the, *Saaty, Thomas L.* 40 (1967) 31-36.
Four-Dimensional Polytopes. Shadows of, *Chilton, Bruce L.* 44 (1971) 269-273.
Four Dimensions. Hyper-Spacial Tit-Tat-Toe or Tit-Tat-Toe in, *Funkenbusch, William W. and Eagle, Edwin L.* 19 (1944) 119-122.
Four Equal Tritangent Circles. *Bankoff, Leon.* 37 (1964) 48.
Four Mathematical [Number] Surprises. *Anning, Norman.* 36 (1963) 80.
Fourier Expansions. Infinite Series and Taylor and, *James, Robert C.* 25 (1952) 269-272; 26 (1952) 21-31.
Fourier Expansions of $2^{n-1}\cos^n x$ and $2^{n-1}\sin^n x$. Pascal-Type Triangles for the, *Rasof, Bernard.* 40 (1967) 235-240.
Fourier Series. Certain Expressions Related to, *Dobbie, J.M.* 17 (1943) 285-291.
Fourier Series to Summation of Series. Application of, *Edstrom, Clarence R.* 40 (1967) 214-216.
Fourier Transforms. Some Introductory Exercises in the Manipulation of, *Cameron, Robert H.* 15 (1941) 331-356.
Fourth Dimension. Spaceland as Viewed Informally from the, *Jacobson, R.A.* 40 (1967) 174-178.
Fourth International History of Science Congress, Prague, Sept. 22-27, 1937. The, *Jelitai, Jôzsef.* 12 (1937) 77-81.
Fourth Lesson in the History of Mathematics. A, *Miller, G.A.* 17 (1942) 13-20.
Fractions: *see also* Continued, Partial.
Fraction Expansions. Egyptian, *Cohen, Robert.* 46 (1973) 76-80.
Fraction Problem in College Algebra. Notes on a, *Wilson, Hazel Schoonmaker.* 28 (1955) 281-282.
Fraction Rule in Logarithms. A, *Scherberg, M.G.* 11 (1937) 195.
Fractional Calculus. *Ross, Bertram.* 50 (1977) 115-122.
Fractional Equations in a Field, Involving One Unknown. On, *Vandiver, H.S.* 32 (1959) 173-176.
Fractional Indices, Exponents, and Powers. *Boyer, Carl B.* 18 (1943) 81-86.
Fractions Into Partial Fractions. Decomposition of Rational, *Boldyreff, Alexander W.* 17 (1943) 261-267; *Reprinted (with examples)* 24 (1951) 139-146.
Fractions. Isotone and Antitone, *Gould, H.W.* 36 (1963) 240-244.
Fractions. Science in Multiplying, *Smith, C.D.* 3:8 (1929) 8-10.
Fréchet-Michal Derivatives in Real and Complex Normed Linear Spaces. On Bounds of Polynomials in Hyperspheres and, *Michal, Aristotle D.* 27 (1954) 119-126.
Freedom Into Comparisons When the "Classes" Do Not Contain the Same Number of Items. Analyzing Degrees of, *Baten, William Dowell.* 19 (1945) 221-228.
Frégier Theorem. Harmonic Points and Loci Connected with the, *Spezia, Sister Clotilda.* 28 (1954) 13-19.
French Geometers of the 19th Century. *Thébault, Victor T.* 32 (1958) 79-82.
French Mathematician of the Sixteenth Century, Jacques Peletier (1517-1582). A, *Thébault, Victor T.* 21 (1948) 147-150.
French Method of Long Division. On the, *Mitchell, B.E.* 26 (1953) 154.
Frequency Law $(\Gamma(p+q)/\Gamma(p)\Gamma(q))x^{p-1}(1-x)^{q-1}$. Concerning the Distribution of the Mean of r Independent Chance Variables When Each Is Subject to the, *Baten, William Dowell.* 13 (1939) 357-361.
Fresh Look at Geometry. A, *Bryant, V.W.* 44 (1971) 180-182.
Fresh Start [for Calculus]. A, *Olds, Edwin G.* 12 (1938) 290-293.
Freshman [Educational] Problems. The, *O'Quinn, R.L.* 5:3 (1930) 2-5.
Freshman Mathematics. A Preliminary [Educational] Report on Homogeneous Grouping in, *Seidlin, Joseph.* 7:7 (1933) 1-4.
Freshman Mathematics. An Approach to a Class in, *Theobald, John A.* 8 (1933) 51-54.
Freshman Mathematics Grades. Some High School Factors in, *Stewart, R.H.* 6:5 (1932) 10-12.
Freshman Mathematics in Albion College. Student Tutorial System in, *Sleight, E.R.* 10 (1935) 101-103.
Freshman Mathematics. Suggestions for Reducing Mortality in, *Heinzman, W.P.* 14 (1940) 211-213.
Freshman Mathematics. Unified, *Urner, S.E.* 25 (1951) 29-35.
Freshman Placement Program. A, *Smith, C. D.* 4:5 (1930) 9-10.
Frobenius] Indical Equation. A Note on the [, *Squire, William.* 34 (1961) 226-229.
Function: *see also* Analytic, Circular, Continuous, Elliptic, Euler, Hyperbolic, Periodic, ϕ Rational, Symmetric, Transcendental.
Function from Elementary Calculus. A Curious, *Sell, William.* 7:5 (1933) 13-15; *Sequel* 7:7 (1933) 29-30.

Function Game. The, *Guthery, Scott.* 39 (1966) 148-150.
Function in Terms of Exponentials. Expansion of a, *Merrill, Lynn L.* 11 (1936) 78-84.
Function on a Region. On the Absolute Maximum of a, *Smith, H.L.* 3:8 (1929) 13-15.
Function Similar to [the Factorial] n! Note on a, *de Koninck, Jean-Marie.* 47 (1974) 226.
Function Whose Values are Integers. A, *Arkin, Joseph.* 38 (1965) 196-199.
Functionals: *see also* Linear.
Functional Analysis in Topological Group Spaces. *Michal, Aristotle D.* 21 (1947) 80-90.
Functional Differential and Functional Integral Equations. Introduction to a Study of a Type of, *Robinson, Lewis Bayard.* 23 (1950) 183-188.
Functional Equation] f(x+y) = f(f(x) + f(y)). On Number Theoretic Functions Which Satisfy [the, *Simone, Joseph N.* 46 (1973) 213-215.
Functional Equation f(x+y) = f(x)+f(y). Remarks on the, *Hewitt, Edwin and Zuckerman, Herbert S.* 42 (1969) 121-123.
Functional Equation in Elementary Differential Equations. An Application of a Cauchy, *Reeves, Roy F. and Pursell, Lyle E.* 29 (1956) 272-273.
Functional Equation in the Multiplicative Theory of Numbers. Solution of a, *Bell, E.T.* 24 (1951) 233-235.
Functional Equation: the Complex Case. A Differential-, *Giesy, Daniel P.* 43 (1970) 263-267.
Functional Equations. An Example in, *Steinberg, R.* 29 (1956) 129-130.
Functional Equations Defining the Complementary Operations. *Sanders, S.T.* 12 (1937) 115-117.
Functional Equations in Mathematical Statistics. *Tan, Peter.* 45 (1972) 179-183.
Functional Means and Dispersions. Elementary Concepts of, *Gill, John P.* 24 (1950) 65-75.
Functional Operator Tf(x) = f(x+a)f(x+b)-f(x)f(x+a+b). The, *Gould, H.W.* 37 (1964) 38-46.
Functionals. Cones and the Decomposition of, *Pierce, R.* 24 (1951) 117-122.
Functionals. Continuity of Coordinate, *Milnes, Paul.* 49 (1976) 139.
Functionals. Integral Equations and, *Michal, Aristotle D.* 24 (1950) 83-95.
Functionals of the Coefficient Functions. Solutions of Systems of Linear Differential Equations as Entire Analytic, *Michal, Aristotle D.* 22 (1948) 57-66.
Functions. A Cauchy Condition for, *Schawe, D.P.* 44 (1971) 159-161.
Functions--A Survey and a Proposal. The Language of, *Bush, George C.* 42 (1969) 259-262.
Functions Analogous to Trigonometric and Hyperbolic Functions. Some, *Temple, V.B.* 13 (1939) 263-271.
Functions. Derivatives of Determinants and Other Multilinear, *May, Kenneth O.* 38 (1965) 307-308.
Functions. Dimensional Analysis and Homogeneous, *Wilansky, Albert.* 30 (1957) 154-155.
Functions Having Elementary Integrals for Arc Length. A Class of, *Dotson, W.G., Jr. and Savage, R.G.* 43 (1970) 42-43.
Functions [in Calculus]. On Certain Useful, *Smith, H.L.* 4:6 (1939) 20-22.
Functions of a Dual or Duo Variable [Analysis over Complex-like Rings]. *Deakin, Michael A.B.* 39 (1966) 215-219.
Functions of the Form $e^{ax}f(x)$. On Integration of, *Hakala, Reino W.* 27 (1953) 69-74; *Comment* 28 (1954) 115-119.
Functions of Vectors. On the Differentiation of Scalar, *Smith, H.L.* 4:8 (1930) 17-18.
Functions. On Infinite Sums of Bessel, *Levi, Leo.* 33 (1959) 108.
Functions on R. Continuous, Exactly K-to-One, *Wenner, B.R.* 45 (1972) 224-225.
Functions on the [Infinite Set of] Positive Integers Onto [with Probability One]? Are Many 1-1, *Neuts, Marcel F.* 41 (1968) 103-109.
Functions. Polynomials and, *Kattsoff, Louis O.* 33 (1960) 157-160.
Functions. SAM [Subadditive Multiplicative], *Hall, Wayne and Hight, Donald W.* 41 (1968) 63-66.
Functions. Segment-, *Freund, John E.* 21 (1948) 261-264.
Functions that Preserve Unit Distance. *Greenwell, Donald and Johnson, Peter D.* 49 (1976) 74-79.
Functions. The Conic, *Capecelatro, Achille.* 15 (1941) 303-314.
Fundamental Distribution of Errors for Agricultural Field Trials. *Baker, G.A.* 16 (1941) 7-19.
Fundamental Hydrodynamical Equations and Shock Conditions for Gases. The, *Thomas, T.Y.* 22 (1949) 169-189.
Fundamental Theorem of Algebra. On the, *Webber, W. Paul.* 7:5 (1933) 9-13.
Fundamental Theorem of Algebra. Open Mappings and the, *Thompson, R.L.* 43 (1970) 39-40; *Comment* 45 (1972) 113.
Fundamentals of Beginning Algebra. *Hills, E. Justin.* 21 (1948) 212-230.
Fundamentals of Mathematics. Teaching the, *Tripp, M.O.* 17 (1943) 225-227.
Further Generalization of Neustadt's Law [Satire]. A, *Bergman, George M.* 32 (1959) 271-274.

Further Notes on the Theory of Correlation. Some, *Smith, C.D.* 32 (1959) 269-270.
Further Properties of Third Order Determinants. *Cohen, Joel E.* 35 (1962) 304.
Further Results with [the Prime Generator] N^2-N+A. *Hunter, J.A.H.* 36 (1963) 313-314.

G

G.A. Miller as Mathematician and Man: Some Salient Facts. [Biography:], *Dunnington, G. Waldo.* 12 (1938) 384-387.
Galaxies. Receding, *Burton, Lindley J.* 33 (1960) 161.
Game. A Simple, *Horton, Robert E.* 25 (1951) 53-54.
Game. A Two-Move, *Schwartz, Benjamin L.* 47 (1974) 190-197.
Game." An Integer Programming Handicap System in a "Write Ring Tossing, *Schuster, Eugene F.* 48 (1975) 134-142.
Game Based on Euclid's Algorithm. Properties of a, *Spitznagel, Edward L., Jr.* 46 (1973) 87-92.
Game of Nim--A Heuristic Approach. The, *Baron, Julius G.* 47 (1974) 23-28.
Game of Sim: A Winning Strategy for the Second Player. The, *Mead, Ernest, Rosa, Alexander and Huang, Charlotte.* 47 (1974) 243-247.
Game on a Graph. Isolation, A, *Ringeisen, R.D.* 47 (1974) 132-138.
Game Series in Sports. Seven, *Groeneveld, Richard A. and Meeden, Glen.* 48 (1975) 187-192.
Game. The Function, *Guthery, Scott.* 39 (1966) 148-150.
Game. The Solution of a Simple, *Cohen, Daniel I.A.* 45 (1972) 213-216.
Game. The South American, *Itzinger, Oskar.* 50 (1977) 17-21.
Games of Strategy. *Dresher, Melvin.* 25 (1951) 93-99.
Games. Some Generalizations of Wythoff's Game and Other Related, *Holladay, John C.* 41 (1968) 7-13.
$\Gamma(p+q)/\Gamma(p)\Gamma(q))x^{p-1}(1-x)^{q-1}$. Concerning the Distribution of the Mean of r Independent Chance Variables When Each Is Subject to the Frequency Law (, *Baten, William Dowell.* 13 (1939) 357-361.
Gamma Functions. Relation Between the Beta and the, *Konnully, Augustine O.* 41 (1968) 37-39.
Garrett's Mechanism [for Drawing Curves]. *Jones, W.C.* 12 (1937) 118-121.
Gases. The Fundamental Hydrodynamical Equations and Shock Conditions for, *Thomas, T.Y.* 22 (1949) 169-189.
Gauss and the Early Development of Algebraic Numbers. *Bell, E.T.* 18 (1944) 188-204, 219-233.
Gauss Archive and the Complete Edition of His Collected Works, 1860-1933. The, *Dunnington, G. Waldo.* 8 (1934) 103-107.
Gauss, His Disquisitiones Arithmeticae, and his Contemporaries in the Institut de France. *Dunnington, G. Waldo.* 9 (1935) 187-192.
Gauss in Mathematics and Some Aspects of His Work. The Historical Significance of Carl Friedrich, *Dunnington, G. Waldo.* 8 (1934) 175-179.
Gauss-Seidel Iteration. The Convergence of Jacobi and, *Venit, Stewart.* 48 (1975) 163-167.
Gauss. The Hypergeometric of, *Hackman, Abe.* 7:4 (1933) 10-16; 7:7 (1933) 25-28.
Gaussian Integer as a Sum of Two Squares. The Representation of a, *Mordell, L. J.* 40 (1967) 209.
Gaussian Integers]. Another Proof of a Theorem of Niven [on, *Williams, Kenneth S.* 46 (1973) 39.
Gaussian Integers. Complete Residue Systems in the, *Jordan, J.H. and Potratz, C.J.* 38 (1965) 1-12.
Geiser. [Obituary:] Carl Friedrich, *Emch, Arnold.* 12 (1938) 286-289.
General Cayley-Hamilton Theorem via the Easiest Real Case. The, *Smith, J. Denmead.* 48 (1975) 232-233.
General Comparison of Conformal and Equilong Geometries. *De Cicco, John.* 16 (1942) 275-279.
General Definition of a Conic. On the, *Boldyreff, Alexander W. and Hohn, Franz E.* 17 (1942) 31-37.
General Equation of the Second Degree. The, *Williams, K.P.* 16 (1941) 37-43.
General Formulas Suggested by An Elementary Identity. Some, *Hodge, Frederick H.* 10 (1935) 13-17.
General Isomorphism Theorem for Factor Groups. A, *Reed, Irving S.* 24 (1951) 191-194.
General Remarks Concerning Scientific Exposition. Some, *Langer, Rudolph E.* 9 (1934) 12-18, 42-46.
General Solution of the Exact Differential Equation Mdx + Ndy = 0. The, *Adkisson, V.W.* 12 (1938) 296-297.
General Solution to the Occupancy Problem with Variably Sized Runs of Adjacent Cells Occupied by Single Balls. *Pease, Roger W., Jr.* 48 (1975) 131-134.
General Subtraction. *Petticrew, James W.* 43 (1970) 145-147.
General Theory of Limits. A, *Smith, H.L.* 12 (1938) 371-379.
General Theory of Roulettes. The, *Walker, Gordon.* 12 (1937) 21-26.
General Trihedron of a Curve. On a, *Yannopoulos, Alex J.* 25 (1952) 189-190.

Generalised Form of a Theorem on Integer Quotients of Products of Factorials. A, *Horadam, E.M.* 36 (1963) 98-100.
Generalization and Correlation Through Mathematics. On, *Webber, W. Paul.* 5:7 (1931) 33-36.
Generalization of a Putnam Problem. A, *Clever, C.C. and Yocom, K.L.* 49 (1976) 135-136.
Generalization of Buffon's Needle Problem in Probability. A, *Funkenbusch, William W.* 24 (1951) 245-248.
Generalization of Chevilliet's Formula. A, *Camp, Chester C.* 11 (1936) 8-13.
Generalization of Eisenstein's Criterion. A, *Chao, Howard.* 47 (1974) 158-159.
Generalization of Euler's Relation in the Triangle. A, *Goormaghtigh, R.* 15 (1941) 230-231.
Generalization of Krasnoselski's Theorem on the Real Line. A, *Hillam, Bruce P.* 48 (1975) 167-168.
Generalization of Pascal's Arithmetical Triangle. *Tremblay, Althéod.* 11 (1937) 255-258.
Generalization of the Congruence $r^x \equiv x \pmod{p}$. A, *Osborn, Roger.* 34 (1961) 349-351.
Generalization of the Legendre Transformation. A, *Buschman, R.G. and Damaskos, N.J.* 33 (1960) 185-191.
Generalization of the S-Stirling Numbers. A, *Hines, Jerome.* 29 (1956) 200-203.
Generalization of the von Koch Curve. A, *Schneider, Joel E.* 38 (1965) 144-147.
Generalization of Trigonometry. A, *Thielman, H.P.* 11 (1937) 349-351.
Generalization of Wilson's Theorem. A, *Elston, Fred G.* 30 (1957) 159-162.
Generalizations of Euclid. *Nichols, Irby C.* 2:4 (1928) 11-15.
Generalizations of the [Arithmetic Mean] and [Geometric Mean] Inequality. *Daykin, D.E. and Eliezer, C.J.* 40 (1967) 247-250.
Generalizations of the 14-15 Puzzle. Some, *Liebeck, Hans.* 44 (1971) 185-189.
Generalizations of the Logarithmic Mean. *Stolarsky, Kenneth B.* 48 (1975) 87-92.
Generalizations of the Pascal Triangle. Some, *Cadogan, Charles.* 45 (1972) 158-162.
Generalizations of the Sylvester Problem. *Edelstein, M.* 43 (1970) 250-254.
Generalizations of Theorems About Triangles. *Allendoerfer, Carl B.* 38 (1965) 253-259.
Generalizations of Wythoff's Game and Other Related Games. Some, *Holladay, John C.* 41 (1968) 7-13.
Generalized Euler ϕ-Function. A, *Cohen, Eckford.* 41 (1968) 276-279.
Generalized Feld Series. On a, *Nedumpilly, Sister M. Redempta and Regan, Francis.* 35 (1962) 91-98.
Generalized Inverses. Geometry of, *Amir-Moéz, Ali R. and Newman, T.G.* 43 (1970) 33-36.
Generalized Parallelogram Law. A, *Amir-Moéz, Ali R. and Hamilton, J.D.* 49 (1976) 88-89.
Generalized Pythagorean Numbers. *Duncan, Dewey C.* 10 (1936) 209-211.
Generalized Semilinear Transformations. A Note on, *Dotson, W.G., Jr.* 43 (1970) 147-149.
Generalized Weierstrass Approximation Theorem. The, *Stone, Marshall H.* 21 (1948) 167-184, 237-254.
Generating a Hyperboloid. *Ogilvy, C. Stanley.* 39 (1966) 276-277.
Generating Property of Pythagorean Triples. A, *Arpaia, P.J.* 44 (1971) 26-27.
Generating Series. An Application of, *Moser, Leo.* 35 (1962) 37-38.
Genius Tick? (An Interview with George Bergman). What Makes a, *Wallace, Mike.* 31 (1958) 282.
Genocchi Numbers. Some Integrals for, *Gandhi, J.M.* 33 (1959) 21-23.
Geoboard Triangles with One Interior Point. *Weaver, Charles S.* 50 (1977) 92-94.
Geodesics. A Problem About, *Amir-Moéz, Ali R.* 34 (1961) 211-213.
Geometers of the 19th Century. French, *Thébault, Victor T.* 32 (1958) 79-82.
Geometric and Harmonic Means. Geometrical Interpretations of the Inequalities Between the Arithmetic, *Shisha, O.* 39 (1966) 268-269.
Geometric Application of [the Ratio] $f(n) = n/(n+1)$. A, *Abeles, Francine.* 41 (1968) 259-260.
Geometric Approximations for e. *Buckholtz, J.D.* 47 (1974) 138-143.
Geometric Configurations. A Transformation for Classes of, *Dilley, Norman R., Green, Thomas M. and Hamberg, Charles.* 42 (1969) 136-139.
Geometric Conjugate of a Point Relative to Central Quadric Surfaces. *Gorowara, Krishan K.* 40 (1967) 260-263.
Geometric Considerations Related to the Mean Value Theorem. Some, *Osborn, Roger.* 33 (1960) 271-275.
Geometric Derivation of the Formula for Integration by Parts. *Ingersoll, Benham M.* 18 (1944) 280-283.
Geometric Examples of Convergent Series. *Barnhart, C.A.* 17 (1943) 159-162.
Geometric Extremum Problems. *Chakerian, G.D. and Lange, L.H.* 44 (1971) 57-69.
Geometric] Fallacy? Where is the [, *Maizlish, I.* 4:2 (1929) 19-20.
Geometric Figures. An Algebraic Function of, *Grossman, Howard D.* 17 (1943) 168-169.
Geometric Inequalities. Extensions of Some, *Klamkin, Murray S.* 49 (1976) 28-30.

Geometric Inequalities via the Polar Moment of Inertia. *Klamkin, Murray S.* 48 (1975) 44-46.
Geometric Inequality. Proof without Words: A Truly, *Gallant, Charles.* 50 (1977) 98; *Comment* 50 (1977) 277.
Geometric Interpretation of the Implicit Function Theorem. *Kreith, Kurt.* 36 (1963) 64-65.
Geometric Interpretation of the Solutions of [the Differential Equation] $y'' = c^2y$. A, *Lind, D.A.* 39 (1966) 273-276.
Geometric Interpretations of Some Classical Inequalities. *Ercolano, Joseph L.* 45 (1972) 226.
Geometric Mean Inequality: A New Proof. The Arithmetic Mean-, *Chong, Kong-Ming.* 49 (1976) 87-88.
Geometric Mean] Inequality. Generalizations of the [Arithmetic Mean] and [, *Daykin, D.E. and Eliezer, C.J.* 40 (1967) 247-250.
Geometric Mean Inequality] that Would Please N.D. Kazarinoff. A Proof [of the Arithmetic Mean-, *Ogilvy, C. Stanley.* 38 (1965) 110.
Geometric Perpetual Calendar. A, *Sholander, Marlow.* 25 (1952) 275-277.
Geometric Problems and Their Generalizations. Vector Solutions of, *Amir-Moéz, Ali R.* 38 (1965) 299-301.
Geometric Problems. Goals in the Solution of, *Sophie Wright High School.* 8 (1934) 73-76.
Geometric Proof of rp - sq = 1. A Construction of Regular Polygons of pq Sides Leading to a, *Johnson, Paul B.* 38 (1965) 164-165.
Geometric Proof of the Formula for [the Logarithm] ln 2. A, *Kost, Frank.* 44 (1971) 37-38.
Geometric Proof of the Nonexistence of [the Projective Geometry] PG_7. A, *Heath, Steven H. and Wylie, C.R., Jr.* 43 (1970) 192-197.
Geometric Proof that $\sqrt{2}$ is Irrational. A, *Turner, Barbara.* 50 (1977) 263.
Geometric Properties of the Deltoid. *Fettis, Henry E.* 19 (1945) 327-335.
Geometric Reinforcement. *Lariviere, R.* 30 (1957) 205-206.
Geometric Representation of the Quasi-Trigonometric Functions. A, *Hapke, Larry and Stein, F. Max.* 40 (1967) 111-120.
Geometric Series. A Note on Observed, *Soble, A.B.* 14 (1940) 372.
Geometric Solutions. Ibn Haitham's Problems and Their, *Amir-Moéz, Ali R.* 30 (1956) 93.
Geometric Theorems in Dynamics. *Kasner, Edward and De Cicco, John.* 22 (1949) 223-233.
Geometric Transformations. Normal Curve Areas and, *Gans, David.* 31 (1958) 205-206.
Geometrical Approach to Probability. A *Brunk, H.D. and Gref, L.G.* 37 (1964) 287-296.
Geometrical Aspects of Newton's Method. *Jennings, Walter.* 42 (1969) 262-266.
Geometrical Calculus by Van Der Waerden in Connection with the Elliptic Cubic. A Certain, *Emch, Arnold.* 14 (1940) 439-442.
Geometrical Coincidence. A, *Bankoff, Leon.* 37 (1964) 324.
Geometrical Ideas. I: Homogeneous Coordinates; II: The Principle of Duality. Notes on the History of, *Pedoe, Dan.* 48 (1975) 215-217, 274-277.
Geometrical Interpretation of Certain Algebraic Results. A, *Pedoe, Dan.* 47 (1974) 278-279.
Geometrical Interpretation of the Invariant System of Two Binary Cubics. A, *Rolfe, Kathryn B.* 19 (1945) 211-220.
Geometrical Interpretations of the Inequalities Between the Arithmetic, Geometric and Harmonic Means. *Shisha, O.* 39 (1966) 268-269.
Geometrical Paradox. Fibonacci Sequences and A, *Horadam, A.F.* 35 (1962) 1-11.
Geometrical Paradox. On Fibonacci Sequences and a, *Kumar, Santosh.* 37 (1964) 221-223.
Geometrical Probability. A Problem in, *Langford, Eric.* 43 (1970) 237-244.
Geometrical Solution of the Three Factory Problem. A, *Van de Lindt, W.J.* 39 (1966) 162-165.
Geometrie Elementaire. Theoremes de, *Thébault, Victor T.* 14 (1940) 313-316.
Geometries. General Comparison of Conformal and Equilong, *De Cicco, John.* 16 (1942) 275-279.
Geometries with Two Points Per Line. Planar Incidence, *Whitney, R.E.* 40 (1967) 265-267.
Geometry: *see also* Analytic, Differential, Euclidean, Non-Euclidean, Plane, Projective.
Geometry. A Fresh Look at, *Bryant, V.W.* 44 (1971) 180-182.
Geometry]. A Grass-Root Origin of a Certain Mathematical Concept [in, *James, Glenn.* 29 (1956) 131-133.
Geometry. A Primitive, *Fulton, Curtis M.* 33 (1959) 27-29.
Geometry. A Strange Ultrametric, *Akst, George.* 49 (1976) 142-145.
Geometry. Absoluter, *Menzel, Richard.* 41 (1968) 191-197.
Geometry. An Extension of Brocard, *Sidenblad, Paul.* 47 (1974) 159-161.
Geometry and Trigonometry. The First Printed Armenian Treatise on, *Shaw, Allen A.* 10 (1936) 287-289.
Geometry as an Aid to Logical Thinking. Reflections on the Study of, *Rickey, F.A.* 6:2 (1931) 12-15.

Geometry, Each as an Aid to the Study of the Other. Arithmetic-Algebra-, *Rankin, W.W.* 25 (1952) 263-268.
Geometry Education]. Euclid, You Must Be Kidding [:, *Jenkins, Terry L.* 41 (1968) 34-37.
Geometry [i.e., Topology]. On Recent Developments in, *Smith, C.D.* 5:7 (1931) 23-27.
Geometry in General Education. *Horton, Robert E.* 29 (1955) 41-44.
Geometry. Introducing the Study of Proportion in High School, *Rickey, F.A.* 6:5 (1932) 8-9.
Geometry. Major Objectives in, *Rickey, F.A.* 5:5 (1931) 7-11.
Geometry. Modes of Studying, *Forno, Dora M.* 4:1 (1929) 7-9; 4:3 (1929) 5-11.
Geometry. Note Concerning Two Construction Problems in, *Tan, Kaidy.* 38 (1965) 222-228.
Geometry of Circles. Applications of Complex Numbers to, *Shaw, Allen A.* 14 (1939) 26-36.
Geometry of Clocks. A, *Woodbridge, Margaret Young.* 22 (1949) 129-137.
Geometry of Generalized Inverses. *Amir-Moéz, Ali R. and Newman, T.G.* 43 (1970) 33-36.
Geometry of Numbers. A Linear Form Result in the, *Mordell, L.J.* 45 (1972) 152-154.
Geometry of Plane Cubic Curves. Polygons as Fundamental Elements in the, *Feld, J.M.* 14 (1940) 367-371.
Geometry of the Brocard Points. Reflective, *Bailey, D. Moody.* 36 (1963) 162-175.
Geometry of the Circular Horn Triangle. The, *Kasner, Edward and Kalish, Aida.* 18 (1944) 299-304.
Geometry of the Imaginary Triangle. *Ramler, O.J.* 24 (1951) 203-206.
Geometry of the n-Dimensional Simplex. On the, *Iwata, Shikō.* 35 (1962) 273-277.
Geometry of the Triangle. Some Reflective, *Bailey, D. Moody.* 33 (1960) 241-259.
Geometry of Third Order Differential Elements. Equilong, *De Cicco, John.* 19 (1945) 276-282.
Geometry of Zeros of Polynomials. A Note on the, *Long, Clifford A.* 44 (1971) 157-159.
Geometry. On Intuitive, *Webber, W. Paul.* 6:2 (1931) 9-12.
Geometry. Point Set, *Killgrove, Raymond B.* 44 (1971) 115-119.
Geometry Problem. A, *Mathis, H.F.* 29 (1956) 277-279.
Geometry. Reflections on Pure, *Court, Nathan Altshiller.* 37 (1964) 337-339.
Geometry. Rotary Engine, *Nash, David H.* 50 (1977) 87-89.
Geometry. Some Applications of Determinants to, *Izard, Roberta and Wilson, Mary Elizabeth.* 6:4 (1932) 19-23.
Geometry. Some Historic and Philosophic Aspects of, *Osborn, Roger.* 24 (1950) 77-82.
Geometry. Suggestions for Improving the Teaching of Solid, *Shoptaugh, John R.* 4:2 (1929) 3-12.
Geometry. The Development of Elementary, *Buchanan, H.E.* 3:5 (1929) 9-18.
Geometry. The First Lessons in, *Riley, Martin L.* 6:5 (1932) 17.
Geometry. The Tesseract $(a+b)^4$: A Demonstration of the Binomial Theorem in Fourth Dimensional, *Herbert, Harriet B.* 15 (1940) 97-99.
Geometry. The Unit Assignment in Algebra and, *Bostick, Lucille M. and Payne, William A.* [Erroneously] 8 (1934) 76-80; *Reprinted* 162-167.
Geometry. The Value of the Study of Solid, *Harwell, J.T.* 5:2 (1930) 13-15.
Geometry. Three-Circle Problems in Modern, *Smith, C.D.* 14 (1940) 299-307.
Geometry. Vector Space Axioms for, *Fulton, Curtis M.* 36 (1963) 299-301, 311, 318.
Geometry. Visual Aids in Teaching, *Hoag, Jessie May.* 14 (1939) 153-159.
Geometry Worth While. Making, *Sanders, S. T.* 4:1 (1929) 12-20.
Gergonne Point. The Poristic Locus of the, *Arany, Daniel.* 13 (1939) 367.
Germain. An Appreciation of Sophie, *Thomas A. Kempis, Sister M.* 14 (1939) 81-90.
Getting Squared Away in [the Number] 1961. *Trigg, Charles W.* 34 (1961) 168.
Gibbs]. America's Greatest :[Josiah Willard, *Studley, Duane.* 23 (1949) 75-78.
Gist of the Calculus. The, *James, Glenn.* 22 (1948) 29-46.
Glissettes. The Theory of Roulettes and, *Walker, Gordon.* 13 (1939) 223-229.
Glossary [Humor]. *O'Brien, Katharine.* 46 (1973) 38.
Gnome and the Pearl of Wisdom: A Fable [of Infinity]. The, *Willmott, Richard.* 50 (1977) 141-143; *Comment* 50 (1977) 223.
Gnomon-Magic Squares. A Property of Third Order, *Trigg, Charles W.* 43 (1970) 70.
Gnomons. Representation of n^r by n^p Consecutive, *Parker, Russell V.* 34 (1960) 101-103.
Goals in the Solution of Geometric Problems. *Sophie Wright High School.* 8 (1934) 73-76.
Goethe's Attitude Toward Mathematics. *Locher, Louis.* 11 (1936) 131-145.
Goldbach Conjecture. New Experimental Results on the, *Stein, M.L. and Stein, P.R.* 38 (1965) 72-80.
Goldberg's Inequality Associated with the Malfatti Problem. On, *Gabai, Hyman and Liban, Eric.* 41 (1968) 251-252.
Golden and Platinum Proportions. The, *Bell, E.T.* 19 (1944) 21-26.

Golomb. A Partial Solution to a[n Array] Conjecture of, *Cohen, Martin J.* 38 (1965) 95.
Good" Generalization of the Euler-Fermat Theorem. A ", *Osborn, Roger.* 47 (1974) 28-31.
Goursat. In Memoriam: E.J.B., *Dunnington, G. Waldo.* 11 (1937) 190.
Goursat's Theorem for Groups. On the Number of Subgroups of Index Two--An Application of, *Crawford, R.R. and Wallace, K.D.* 48 (1975) 172-174.
Government Research. The Use of Mathematics in, *Nielson, Kay L.* 21 (1948) 193-195.
Grades and Distributions. *Rutt, Norman E.* 18 (1943) 120-126.
Grades in Freshman Algebra as Indicative of Later Success in Engineering Mathematics Courses. *Camp, Chester C.* 15 (1941) 251-253.
Gram-Schmidt Process. An Alternative to the, *Staib, John H.* 42 (1969) 203-205.
Gram-Schmidt Process is Not so Bad! The, *Hoffman, Anthony E.* 43 (1970) 261-263.
Grammar of Algebra. The, *Hills, E. Justin.* 22 (1948) 83-99.
Graph. Isolation, a Game on a, *Ringeisen, R.D.* 47 (1974) 132-138.
Graph-Minimization Problems. Euclidean Constructibility in, *Cockayne, E.J. and Melzak, Z.A.* 42 (1969) 206-208.
Graph. The Two-Triangle Case of the Acquaintance, *Harary, Frank.* 45 (1972) 130-135.
Graph Theorem. A Compact, *Kim, Moon.* 47 (1974) 99.
Graph Through Dynamic Programming Technique. The Shortest Connected, *Garg, R.C. and Kumar, Santosh.* 41 (1968) 170-173.
Graphic Method of Problem Analysis [in Education]. The, *Grehan, Carrie.* 4:1 (1929) 1-7.
Graphic Solution of the [Trigonometric] Equation a cos θ + b sin θ = c. A, *Aude, H.T.R.* 10 (1935) 99.
Graphical Algebra. Concerning, *Maddox, A. C.* 3:1 (1928) 13-16.
Graphical Approach. The Truth-Value of {∀,∃, P(x,y)}: A, *Kuehls, Ernest A.* 43 (1970) 260-261.
Graphical Approximations to the Mode. On, *Larsen, Harold D.* 21 (1947) 35-39.
Graphical Construction to Find Approximate Length of the Circumferance of a Circle. *Cicero-Pienkowski, Jerzy.* 30 (1956) 91-92.
Graphical Determination of the Nature of the Roots of a Cubic. A, *Hellman, Morton J.* 34 (1961) 221-222.
Graphical Group Representations. *Maxfield, John E.* 27 (1954) 169-174.
Graphical Representation of Complex Roots. *Ward, James A.* 11 (1937) 297-303.
Graphical Solution for the Complex Roots of a Cubic. A, *Yanosik, George A.* 10 (1936) 139-140.
Graphical Solution of Cubic Equations. On the, *Kulik, S.* 28 (1955) 143-146.
Graphical Solution of Difficult Crossing Puzzles. *Fraley, Robert, Cooke, Kenneth L. and Detrick, Peter.* 39 (1966) 151-157.
Graphical Solution of Higher-Dimensional Linear Programming Problems. Two-Dimensional, *Cooke, W.P.* 46 (1973) 70-76.
Graphical Solution of the Cubic. A, *Curtis, H.B.* 12 (1938) 325-326.
Graphical Solutions for Complex Roots of Quadratics, Cubics and Quartics. *Yanosik, George A.* 17 (1943) 147-150.
Graphical Treatments of the Moment of Inertia of a Plane Lamina. Two, *Holl, D. L.* 9 (1934) 18-21.
Graphing. A Lesson in, *Stein, F. Max.* 36 (1963) 249-252.
Graphing of Surfaces. Inexpensive Computer, *Smith, David A.* 50 (1977) 143-147.
Graphs. A Complementary Problem of Nonplanar, *Harary, Frank.* 35 (1962) 301-303.
Graphs. A Decomposition of the Integers to Generate, *Dilley, Norman R.* 39 (1966) 30-35.
Graphs]. A Sufficient Condition for n-Short-Connectedness [of, *Hedman, Bruce.* 47 (1974) 156-157.
Graphs. A Unit in, *McCall, Geraldine.* 6:4 (1932) 3-6.
Graphs. Complex, *Bergdal, Ed.* 24 (1951) 195-202.
Graphs. Determinants, Permanents and Bipartite, *Harary, Frank.* 42 (1969) 146-148.
Graphs. Disjoint Triangles in Chromatic, *Moon, J.W.* 39 (1966) 259-261.
Graphs]. Economic Traversal of Labyrinths [and, *Fraenkel, A.S.* 43 (1970) 125-130; *Correction* 44 (1971) 12.
Graphs. Hamiltonian Tours and Paths in Rectangular Lattice, *Thompson, Gerald L.* 50 (1977) 147-150.
Graphs. Matrices, Relations, and, *Parker, F.D.* 34 (1960) 5-9.
Graphs of Diameter 2. On Critical, *Murty, U.S.R.* 41 (1968) 138-140.
Graphs of Groups. A Note on the, *Milner, Billy E.* 45 (1972) 45.
Graphs of Semi-Complex Functions. *Schaefer, Paul.* 37 (1964) 273.
Graphs. On Chromatic Bipartite, *Moon, J. W. and Moser, Leo.* 35 (1962) 225-227.
Graphs. On the Transpose-Connectivity of, *Kelly, Paul J. and Merriell, David.* 32 (1958) 1-3.
Graphs. Semi-Complex Functions and their, *Karst, Otto J.* 35 (1962) 282-288.
Graphs with Diameter 2. An Extremal Prob-

lem of, *Bollobás, Béla and Erdös, Paul*, 48 (1975) 281-283.
Grass-Root Origin of a Certain Mathematical Concept [in Geometry]. A, *James, Glenn*. 29 (1956) 131-133.
Gravitation. On the Law of, *Webber, W. Paul*. 6:1 (1931) 9-11.
Gravitational Attraction. On Some Problems in, *Klamkin, Murray S.* 41 (1968) 130-132.
Greatest Common Divisor. Another Theorem Relating Sylvester's Matrix and the, *Laidacker, Michael A.* 42 (1969) 126-128.
Greatest Common Divisor of Certain Binomial Coefficients. The, *Albree, Joe*. 45 (1972) 259-261.
Greatest Common Divisors in Algebraic Number Fields. *Edgar, Hugh M.* 45 (1972) 177-179.
Greatest Integer Function. A Note on the, *Carlitz, Leonard*. 47 (1974) 274-277.
Greek] Problems. On the Solutions of Three Ancient [, *Graef, Edward V. and Harris, V.C.* 42 (1969) 28-32.
Greek] Problems. Simultaneous Solution of the Three Ancient [, *Little, Joyce Currie and Harris, V.C.* 37 (1964) 310-311.
Green's Function of a Linear Differential System. Construction of the, *Miller, Kenneth S.* 26 (1952) 1-8.
Gregorian Calendar. Formula for Finding the Day of the Week, for Any Date in the, *Hoeck, John*. 25 (1951) 55.
Groups: *see also* Abelian, Finite.
Group Elements of Order Two. On, *Monzingo, M.G.* 44 (1971) 97-99.
Group Form a Subgroup? When do the Periodic Elements of a, *Sherman, Gary J.* 47 (1974) 279-281.
Group Method. The, *Birnbaum, S. and Ommidvar, K.* 28 (1955) 277-279.
Group of Contact Transformations. On a, *Sakellariou, Nilos*. 22 (1948) 13-18.
Group of Linear Transformations in the Plane. The Dihedral, *Lundberg, G.H.* 41 (1968) 206-210.
Group of Linear Transformations in the Plane. The Icosahedral, *Lundberg, G. H.* 38 (1965) 80-94.
Group of the Circle is Trivial. Combinatorial Homotopy Theory and a New Proof that the Second Homotopy, *Gonshor, Harry*. 37 (1964) 298-300.
Group of the Composition of Two Tournaments. The, *Alspach, Brian, Goldberg, Myron and Moon, J.W.* 41 (1968) 77-80.
Group Representations. Graphical, *Maxfield, John E.* 27 (1954) 169-174.
Group] S_3. A New Series of Line Involutions in [the, *Wylie, C.R., Jr.* 23 (1950) 125-131.
Group] S_3 Defined as Point Transformations of a V_4^2 in S_5 Into Itself. A Series of Line Involutions in [the, *Wylie, C.R., Jr.* 14 (1939) 125-133.
Group Spaces. Functional Analysis in Topological, *Michal, Aristotle D.* 21 (1947) 80-90.
Group Table. Symmetries of the Cayley, *O'Neill, John D.* 47 (1974) 146-149.
Group. The Subgroups of the Dihedral, *Cavior, Stephan R.* 48 (1975) 107.
Group Theoretic Presentation of the Alternating Group on Five Symbols, A_5. A, *Schenkman, Eugene.* 48 (1975) 170-171.
Group Theory and Colors. *Amir-Moéz, Ali R.* 32 (1959) 161-162.
Group Theory. Computers in, *Gallian, Joseph A.* 49 (1976) 69-73; *Comment* 50 (1977) 56.
Group Theory. Mersenne Primes and, *Feigelstock, Shalom.* 49 (1976) 198-199.
Groupoids and Rings. Symmetric, *Duncan, R.L. and Duncan, Hilda F.* 44 (1971) 127-133.
Groups. A General Isomorphism Theorem for Factor, *Reed, Irving S.* 24 (1951) 191-194.
Groups. A Note on the Graphs of, *Milner, Billy E.* 45 (1972) 45.
Groups as Groups of Motions. A Note on Representations of Abstract, *Melter, Robert Alan.* 37 (1964) 330-331.
Groups Associated with Ruled Surfaces. Two, *Sweet, Frank H.* 39 (1966) 205-208.
Groups. Basic Configurations of the Plane Under Certain, *Steele, M. Philip, Sr.* 23 (1949) 5-14.
Groups. Calculating Commutators in, *Spiegel, Eugene.* 49 (1976) 192-194.
Groups. Centralizers and Normalizers in Hausdorff, *Grant, Douglass L.* 48 (1975) 218; *Comment* 49 (1976) 259.
Groups. nth Root, *Kennedy, Robert E. and Busby, Robert W.* 49 (1976) 140-141.
Groups of Linear Transformations in the Plane. Some, *Lundberg, G.H.* 34 (1961) 375-385.
Groups of Singular Matrices. *Johnson, Colonel, Jr.* 49 (1976) 205-207.
Groups. On Metric Representations of, *Ellis, David.* 26 (1953) 183-184.
Groups. On the Number of Subgroups of Index Two--An Application of Goursat's Theorem for, *Crawford, R.R. and Wallace, K.D.* 48 (1975) 172-174.
Groups. On Topological Representation of, *Pitcairn, Joel.* 27 (1953) 92.
Groups. Orbit Transfer, *Vargo, Louis G.* 36 (1963) 79-80.
Groups. The Number of 12 x 12 Squares That Can Be Constructed by the Method of Current, *Candy, A.L.* 9 (1935) 223-235.
Groups. The Search for Finite Simple, *Gallian, Joseph A.* 49 (1976) 163-180.

Groups with Identity Elements. n-, *Robinson, Donald W.* 31 (1958) 255-258.
Growth of Modern Methods of Computation. The, *Buchanan, H.E.* 2:4 (1928) 6-11.
Growth: Stability or Explosion? Human Population, *Smith, David A.* 50 (1977) 186-197.
Guide-Lines. *Ransom, William R.* 24 (1950) 15-18.
Gunport Problem. The, *Sands, Bill.* 44 (1971) 193-196; *Comment* 45 (1972) 280.
Gurney. A Special Case of a Transformation Due to, *Adams, L.J.* 9 (1934) 53.

H

Hair [Humor]. *O'Brien, Katharine.* 47 (1974) 149.
Haitham's Problems and Their Geometric Solutions. Ibn, *Amir-Moéz, Ali R.* 30 (1956) 93.
Hamilton, Colgate and Syracuse. The Mathematics Meeting of, *Aude, H.T.R.* 10 (1935) 100-101.
Hamiltonian Circuits: A Hierarchy of Examples. *Smith, James F. and Quinn, Michael J.* 50 (1977) 35-36.
Hamiltonian Tours and Paths in Rectangular Lattice Graphs. *Thompson, Gerald L.* 50 (1977) 147-150.
Hamilton's Discovery of Quaternions. *van der Waerden, B.L.* 49 (1976) 227-234.
Handicap in Billiards, A Numerical Investigation. Setting the, *Neuts, Marcel F.* 46 (1973) 119-127.
Handicap System in a "Write Ring Tossing Game." An Integer Programming, *Schuster, Eugene F.* 48 (1975) 134-142.
Hardy by Banach Space Methods. New Proofs of Some Theorems of, *Taylor, Angus E.* 23 (1950) 115-124.
Harmonic Distortion in Power-Law Devices. *Kaufman, H.* 28 (1955) 245-250.
Harmonic Division of a Line. The, *Nichols, Irby C.* 4:5 (1930) 15-21.
Harmonic Integers. Infinite Classes of, *Bergquist, J.W. and Foster, Lorraine L.* 40 (1967) 128-132.
Harmonic Inversion. *Mandan, Sahib Ram.* 33 (1959) 71-78.
Harmonic Mean of Integers. On Representing an Integer as the, *Golomb, Solomon W.* 46 (1973) 241-244; *Comment* 47 (1974) 234.
Harmonic Mean. The, *Kenney, J.F.* 13 (1939) 171-175.
Harmonic Means. Geometrical Interpretations of the Inequalities Between the Arithmetic, Geometric and, *Shisha, O.* 39 (1966) 268-269.
Harmonic Points and Loci Connected with the Frégier Theorem. *Spezia, Sister Clotilda.* 28 (1954) 13-19.
Harmonic Separation. On, *Henderson, Archibald and Lasley, John Wayne, Jr.* 13 (1938) 3-21.
Harmonic Series. Class Notes on Series Related to the, *Demos, Miltiades S.* 46 (1973) 40-41.
Harmonic Series in Interest Problems. *Shapiro, Isidor F.* 13 (1939) 230.
Harmonic Series. Note on the, *Shapiro, Isidor F.* 13 (1939) 222.
Harmonic Series. Some Relations Involving the Finite, *Gould, H.W.* 34 (1961) 317-321.
Harmonic Sets and Circles. *Larsson, Robert D.* 32 (1958) 35-37.
Harmony of the World [Copernicus and Kepler]. The, *Kline, Morris.* 27 (1954) 127-139.
Hausdorff Groups. Centralizers and Normalizers in, *Grant, Douglass L.* 48 (1975) 218; *Comment* 49 (1976) 259.
Havelock's Work on the Resistance of Ships. Some Definite Integrals Occurring in, *Bateman, H.* 23 (1949) 1-4.
Heads. A Probability of More, *Klamkin, Murray S.* 44 (1971) 146-149.
Heat Flow. A Problem in 2-Dimensional, *Schneider, W.J.* 40 (1967) 144-145.
Heaviside Operational Calculus. Complex Number Algebra as a Simple Case of, *Moore, Douglas H.* 43 (1970) 269-272.
Heaviside Operators. Evaluation of Infinite Integrals by, *Thomson, J.F.* 15 (1941) 173-176.
Heaviside's Calculus. Introduction to, *Johnson, Wm. C., Jr.* 12 (1938) 231-241.
Hebrew May Have Been. The Conway Stones: What the Original, *Berry, Daniel M. and Yavne, Moshe.* 49 (1976) 207-210.
Heptagonal Triangle. The, *Bankoff, Leon and Garfunkel, Jack.* 46 (1973) 7-19.
Heredity. Mathematical, *Becknell, G.G.* 34 (1960) 23-28.
Hermite. Note on a Formula of, *Carlitz, Leonard.* 33 (1959) 7-11.
Hermitian Operators to a Given Operator. Closest Unitary, Orthogonal and, *Keller, Joseph B.* 48 (1975) 192-197.
Heron's Formula. A Simpler Proof of, *Raifaizen, Claude H.* 44 (1971) 27-28.
Herstein. An Elementary Proof of a Theorem of, *Luh, Jiang.* 38 (1965) 105-106.
Hessian. Note on the Quartic and Its, *Ward, James A.* 17 (1943) 165-167.
Hessian to Solve a Cubic Equation. Using the, *Ward, James A.* 9 (1935) 235-240.
Heuristic Method Versus the Lecture Method [of Teaching] in Developing Reflective Thinking. The, *Forno, Dora M.* 5:7 (1931) 3-5.
Hex Must Have a Winner: An Inductive Proof. *Berman, David.* 49 (1976) 85-86; *Comment* 49 (1976) 156.
Hexagonal Configuration. A, *Trigg, Charles W.* 35 (1962) 70.
Hierarchic Algebra. *Prestrud, Marcia Beckmann.* 36 (1963) 43-53.
High [Educational] Standards: Sacred and

Profane. *Seidlin, Joseph.* 23 (1950) 189-192.
High School Algebra as Related to Success in College Algebra. The Timing of, *Coleman, J. Bruce.* 6:4 (1932) 7.
High School and College Mathematics. *O'Quinn, R.L.* 5:6 (1931) 6-11.
High School. Entrance Requirements and Their Effect Upon Mathematics in the, *Sleight, E.R.* 10 (1936) 241-246.
High School Factors in Freshman Mathematics Grades. Some, *Stewart, R.H.* 6:5 (1932) 10-12.
High School Freshmen in Algebra. Interesting, *Bostick, Lucille M.* 4:5 (1930) 3-5.
High School Geometry. Introducing the Study of Proportion in, *Rickey, F.A.* 6:5 (1932) 8-9.
High School Mathematics Club. A, *Garrett, Hattie C.* 5:7 (1931) 6-9.
High School Mathematics Programs for Teacher Education. Implications of the New, *Ringenberg, Lawrence A.* 35 (1962) 229-234.
High School. Reflections of a College Teacher on Mathematics in the, *Langer, Rudolph E.* 10 (1935) 35-43.
High Schools and Colleges. Coordinating the Teaching of Mathematics in, *Gunder, Dwight F.* 15 (1941) 248-250.
Higher Order Approximations to Solutions of Transcendental Systems. *Maley, C.E.* 34 (1960) 97-99.
Higher Singularities of Algebraic Curves. The, *Walker, B.M.* 12 (1938) 263-285.
Highest Rung. [Mathematics:] The, *Schaaf, William L.* 16 (1942) 392-397.
Historic and Philosophic Aspects of Geometry. Some, *Osborn, Roger.* 24 (1950) 77-82.
Historical Material for a Slide Rule Course. Pertinent, *Sleight, Norma.* 20 (1945) 11-20.
Historical] Myths. Mathematical [, *Miller, G.A.* 12 (1938) 388-392.
Historical Significance of Carl Friedrich Gauss in Mathematics and Some Aspects of His Work. The, *Dunnington, G. Waldo* 8 (1934) 175-179.
Historical Stages in the Definition of Curves. *Boyer, Carl B.* 19 (1945) 294-310.
Historical View Point. Introduction to Trigonometry from the, *Webber, W. Paul.* 5:5 (1931) 14-17.
Historiography. Mathematics and, *Glenn, Oliver E.* 26 (1953) 205-208.
History. A Bit of, *Webber, W. Paul.* 5:7 (1931) 14-23.
History] and Use of Decimals. Notes on the Origin [, *Forno, Dora M.* 3:8 (1929) 5-8.
History, Art and Mathematics. A Discussion of the Methods of Science, *Miller, Walter M.* 10 (1936) 200-204.
History. How a Lady's Dress Influenced Mathematical, *Walker, B.M.* 13 (1939) 233-236.
History of American Mathematical Journals [Parts I-XIX]. A, *Finkel, Benjamin F.* 14 (1940) 197-210, 261-270, 317-328, 383-407, 461-468; 15 (1940) 27-34, 83-96, 121-128; 15 (1941) 177-190, 245-247, 294-302, 357-368, 403-418; 16 (1941) 64-78; 16 (1942) 188-197, 284-289, 341-344, 381-391; 17 (1942) 21-30.
History of Geometrical Ideas: I: Homogeneous Coordinates; II: The Principle of Duality. Notes on the, *Pedoe, Dan.* 48 (1975) 215-217, 274-277.
History of Mathematics. A First [Second, ...Eleventh] Lesson in the, *Miller, G. A.* 13 (1939) 272-277; 14 (1939) 144-152; 15 (1941) 234-244; 17 (1942) 13-20; 17 (1943) 212-220, 341-350; 18 (1943) 67-76; 18 (1944) 261-270; 19 (1944) 64-72; 19 (1945) 286-293; 21 (1947) 48-55.
History of Mathematics in Hungary Before 1830. The, *Jelitai, József.* 12 (1937) 125-130.
History of Mathematics. The, *Neugebauer, Otto.* 11 (1936) 17-23.
History of Mathematics. The Study and Teaching of the, *Mitchell, U.G.* 13 (1938) 22-29.
History of π. *Rice, Dorothy.* 2:5 (1928) 6-8.
History of] Precocity in Mathematics. [, *Sanders, S.T.* 7:3 (1932) 21-22.
History of] Quadraturen des Artus de Lionne. Ueber die [, *Hofmann, Josef Ehrenfried.* 12 (1938) 223-230.
History of Science Congress, Prague, Sept. 22-27, 1937. The Fourth International, *Jelitai, József.* 12 (1937) 77-81.
History of the Development of Mathematics in the Field of Economics. A, *Shaw, Ida Bell.* 8 (1933) 31-37; 8 (1934) 128-131.
History of the Solution of the Cubic Equation. The, *Guilbeau, Lucye.* 5:4 (1930) 8-12.
History]. The Egyptians as Pure Mathematicians [, *Nichols, Irby C.* 3:8 (1929) 10-13.
Hölder, and Minkowski Inequalities from Young's Inequality. An Elementary Derivation of the Cauchy, *Tolsted, Elmer.* 37 (1964) 2-12.
Holes and Square Pegs in Round Holes. On Round Pegs in Square, *Singmaster, David.* 37 (1964) 335-337.
Homeomorphisms on Finite Sets. *Sharp, Henry, Jr.* 40 (1967) 152-156.
Homework. Written Classwork and, *Pettigrove, Ruth I.* 5:3 (1930) 14-18.
Homogeneity. Differential Equations Exhibiting Dimensional. *Krick, M.S.* 33 (1959) 99-102.

Homogeneous Coordinates; II: The Principle of Duality. Notes on the History of Geometrical Ideas. I: *Pedoe, Dan.* 48 (1975) 215-217, 274-277.
Homogeneous Functions. Dimensional Analysis and, *Wilansky, Albert.* 30 (1957) 154-155.
Homogeneous Polynomials. A Note Concerning, *Morelock, J.C. and Perry, N.C.* 31 (1957) 75-79.
Homogeneous Spaces. Continuous Transformations of Finite, *McCoy, Dorothy.* 10 (1936) 212-218.
Homologous Point in the Medial Triangle. *Bailey, D. Moody.* 39 (1966) 236-239.
Homotopy Theory and a New Proof that the Second Homotopy Group of the Circle is Trivial. Combinatorial, *Gonshor, Harry.* 37 (1964) 298-300.
Horn Triangle. The Geometry of the Circular, *Kasner, Edward and Kalish, Aida.* 18 (1944) 299-304.
How a Lady's Dress Influenced Mathematical History. *Walker, B.M.* 13 (1939) 233-236.
How Do You Subtract? *Rayl, Adrienne.* 3:4 (1928) 9-12.
How Modern Mathematical Concepts Shed Light on Elementary Mathematics. *Andree, Richard V.* 28 (1955) 173-176.
How Much Redundancy? *Stein, F. Max.* 37 (1964) 344-345.
How to Derive the Formula "$H_r^n = C_r^{n+r-1}$." *Wang, Chung Lie.* 28 (1955) 271-273.
How to Look for the Solution. *Pólya, George.* 9 (1935) 172-173.
How to Solve Cyclic Differential Equations. *Karst, Edgar.* 37 (1964) 305-308.
Human Population Growth: Stability or Explosion? *Smith, David A.* 50 (1977) 186-197.
Humanizing Mathematics. *Archibald, R.C.* 7:2 (1932) 8-11.
Hummel's Paper. A Note on, *Kennedy. E.C.* 16 (1942) 375-376.
Humor]. A Simple Song [, *Anonymous.* 49 (1976) 180.
Humor]. Glossary [, *O'Brien, Katharine.* 46 (1973) 38.
Humor]. Hair [, *O'Brien, Katharine.* 47 (1974) 149.
Humor]. Mini-Profiles [, *O'Brien, Katharine.* 48 (1975) 199.
Hungary Before 1830. The History of Mathematics in, *Jelitai, Jôzsef.* 12 (1937) 125-130.
Huygens' Approximation To π. On, *Nanjundiah, T.S.* 44 (1971) 221-223.
Hydrodynamical Equations and Shock Conditions for Gases. The Fundamental, *Thomas, T.Y.* 22 (1949) 169-189.
Hypatia of Alexandria. *Richeson, A.W.* 15 (1940) 74-82.
Hyperbola. The Rectification of the, *Gwinner, Harry.* 8 (1933) 61-62.
Hyperbolic Analogies. Remarks on Temple's Trigonometric and, *Simmons, H.A.* 14 (1940) 455-458.
Hyperbolic Analytic Geometry. *Jackson, Stanley B. and Greenspan, Donald.* 28 (1955) 251-269.
Hyperbolic Function Substitution. *Gwinner, Harry.* 11 (1937) 334-335.
Hyperbolic Functions. A "Reference Triangle" for, *Van Voorhis, W.* 29 (1956) 157-158.
Hyperbolic Functions in Concentric Circles. *Roby, Marcus A., Sr.* 15 (1941) 401-402.
Hyperbolic Functions. Notes on Circular and, *McCulley, William S.* 31 (1957) 33-38.
Hyperbolic Functions of a Complex Variable. Remarks on the Inverse Trigonometric and, *Pennisi, Louis L. and Sjoblom, L.* 33 (1959) 39-42.
Hyperbolic Functions. Some Functions Analogous to Trigonometric and, *Temple, V.B.* 13 (1939) 263-271.
Hyperbolic Functions. The Circular and, *Smith, H.L.* 5:4 (1930) 14-19.
Hyperbolic Proposal. A, *Ransom, William R.* 37 (1964) 221.
Hyperbolic Segments. An Inequality for Elliptic and, *Golomb, Michael and Haruki, Hiroshi.* 46 (1973) 152-155.
Hyperbolic Solution of the Cubic Equation. *Short, W.T.* 12 (1937) 111-114.
Hyperbolic Substitution for Certain Trigonometric Integrals. Use of, *Viertel, William K.* 38 (1965) 141-144.
Hyperboloid. Generating a, *Ogilvy, C. Stanley.* 39 (1966) 276-277.
Hypergeometric of Gauss. The, *Hackman, Abe.* 7:4 (1933) 10-16; 7:7 (1933) 25-28.
Hyper-Spacial Tit-Tat-Toe or Tit-Tat-Toe in Four Dimensions. *Funkenbusch, William W. and Eagle, Edwin L.* 19 (1944) 119-122.
Hyperspheres and Frécht-Michal Derivatives in Real and Complex Normed Linear Spaces. On Bounds of Polynomials in, *Michal, Aristotle D.* 27 (1954) 119-126.
Hyperspheres. On N + 2 Mutually Orthogonal, *Ayres, Frank, Jr.* 10 (1936) 249-257.
Hypotheses of Science. Mathematics and the, *Ettlinger, H.J.* 11 (1936) 71-77.
Hypotrochoid. The Ellipse as an, *Pedoe, Dan.* 48 (1975) 228-230.

I

Ibn Haitham's Problems and Their Geometric Solutions. *Amir-Môez, Ali R.* 30 (1956) 93.
Icosahedral Group of Linear Transforma-

tions in the Plane. The, *Lundberg, G. H.* 38 (1965) 80-94.
Ideal: *see also* Principal.
Ideal Preparation in Mathematics for College Entrance. *Seidlin, Joseph.* 26 (1952) 89-94.
Ideals form a Chain. Rings whose, *Hill, E.T.* 47 (1974) 97-98.
Ideals in Commutative Domains. *Sinha, I. and Srivastava, J.B.* 44 (1971) 124-127.
Ideals. Integers, Unique Factorization and, *Diamond, Louis E.* 30 (1956) 29-40.
Ideals of Square Summable Power Series. *Rovnyak, James.* 33 (1960) 265-270; *Correction* 34 (1960) 41-42.
Idempotent Matrices with Nilpotent Difference. *Hearon, John Z.* 41 (1968) 80-84.
Idempotent Matrix. An, *Stearn, J.L.* 35 (1962) 53-54.
Identification. Permutation Ordering and, *Shahdan, Peter.* 34 (1961) 353-358.
Identities: *see also* Binomial, Trigonometric.
Identities. Combinatorial Derivations of Two, *Steinberg, Donald A.* 31 (1958) 207-209.
Identities. Some Interesting Algebraic, *McCulley, William S.* 34 (1961) 203-206.
Identity Elements. n-Groups with, *Robinson, Donald W.* 31 (1958) 255-258.
Identity for the Sum of Digits of Integers in a Given Basis. An, *Mauclaire, Jean-Loup.* 47 (1974) 225.
Identity. Note on a Combinatorial, *Hietala, H.J. and Winter, B.B.* 38 (1965) 149-151.
Identity. On Norrie's, *Williams, Kenneth S.* 37 (1964) 322.
Identity. Some General Formulas Suggested by An Elementary, *Hodge, Frederick H.* 10 (1935) 13-17.
If n Lines in the Euclidean PLane Meet in 2 Points Then They Meet in at Least n-1 Points. *Pavlick, Frank.* 46 (1973) 221-223.
Iff Fixed Point Criterion. An, *Jungck, Gerald.* 49 (1976) 32-34; *Comment* 49 (1976) 259-260.
Imaginary Orders [Complex, Quaternionic, Caley]. *Shaw, James Byrnie.* 12 (1937) 63-76.
Imaginary Triangle. Geometry of the, *Ramler, O.J.* 24 (1951) 203-206.
Imaginative Mathematics. *Court, Nathan Altshiller.* 37 (1964) 14-18.
Implication of the Pythagorean Theorem. An, *Jordan, John Q. and O'Malley, John M., Jr.* 43 (1970) 186-189.
Implications of the New High School Mathematics Programs for Teacher Education. *Ringenberg, Lawrence A.* 35 (1962) 229-234.
Implicit Function Theorem. Geometric Interpretation of the, *Kreith, Kurt.* 36 (1963) 64-65.
Implicit Relations. Convex Solutions of, *Brock, William A. and Thompson, Russell G.* 39 (1966) 208-211.
Impossibility. *Richards, Ian.* 48 (1975) 249-262.
Improper Multiple Integrals. On, *Beesack, Paul R.* 43 (1970) 113-123.
Improved Solution to "Instant Insanity." An, *Schwartz, Benjamin L.* 43 (1970) 20-23.
Improving the Teaching of College Mathematics. *Beenken, May M.* 8 (1934) 97-103.
In Memoriam: E.J.B. Goursat. *Dunnington, G. Waldo.* 11 (1937) 190.
In Memoriam Samuel T. Sanders 1872-1970. *Mulcrone, T.F.* 43 (1970) 175-177.
Incenter Inequality]. Notes [on $\sin(\alpha+\beta)$ and the, *Lin, Tien-Hsung.* 38 (1965) 158-159; *Comment* 40 (1967) 28.
Incenters. Medians and, *Sholander, Marlow,* 36 (1963) 129-130.
Inclination and Curvature. Angle of, *Gans, David.* 31 (1957) 31-32.
Incommensurable Numbers by Ratios of Positive Integers. Approximations to, *Thomas, Paul D.* 36 (1963) 281-289.
Inconsistent and Incomplete Logics. *Grant, John.* 48 (1975) 154-159.
Independence. Another Definition of, *Huff, Barthel W.* 44 (1971) 196-197.
Independence of the Axioms of a Seminatural System. On the Complete, *Stern, Samuel T.* 39 (1966) 232-236; *Sequels* 41 (1968) 88-89; 43 (1970) 93-94.
Independent Axioms for a Seminatural System. Completely, *Jacobson, Richard A.* 41 (1968) 88-89; *Sequel* 43 (1970) 93-94.
Independent Families of Sets. Venn Diagrams and, *Grünbaum, Branko.* 48 (1975) 12-23.
Indeterminate Form 0^0. The, *Rotando, Louis M. and Korn, Henry.* 50 (1977) 41-42.
Indeterminate Forms ∞/∞. On the L'Hôpital Rule for, *Hu, Men-Chang and Wang, Ju-Kwei.* 44 (1971) 217-218.
Indeterminate Quotients. On the Differentiability of, *Schoenfeld, Lowell.* 41 (1968) 152-155.
Index Numbers in Evaluation. The Use of, *Erskine, William H.* 16 (1942) 252-258.
Indiana's Squared Circle. *Hallerberg, Arthur E.* 50 (1977) 136-140.
Indical Equation. A Note on the [Frobenius], *Squire, William.* 34 (1961) 226-229.
Indices, Exponents, and Powers. Fractional, *Boyer, Carl B.* 18 (1943) 81-86.
Indirect" Proof. In Defense of the ", *Seidlin, Joseph.* 6:7 (1932) 4-17.
Individual Study of Mathematics. *Webber, W. Paul.* 9 (1935) 106-108.

Induction: *see also* Mathematical.
Induction. A Common Misapplication of the Axiom of Finite, *Andrew, David R.* 35 (1962) 289.
Induction and a Sequence of Generosities. Principles of, *Amir-Moéz, Ali R.* 31 (1958) 120, 132.
Induction by Sampling. Adequate, *Shapiro, Isidor F.* 16 (1942) 398-399.
Induction Fallacy. An, *Wilansky, Albert.* 39 (1966) 305.
Induction. On the Danger of, *Moser, Leo.* 23 (1949) 109.
Inductive Analysis. Extendapawn--An, *Brown, John R.* 38 (1965) 286-299.
Inductive Proof. Hex Must Have a Winner: An, *Berman, David.* 49 (1976) 85-86; *Comment* 49 (1976) 156.
Industry. I: Control Charts by Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. Statistical Decision Procedures in, *Coleman, Edward P.* (I), *Gold, Ben K.* (II), *Howell, John M.* (III) and *Moan, O.B.* (IV). 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Inequalities. *Bellman, Richard.* 28 (1954) 21-26.
Inequalities. A Note on Equations and, *Small, William A.* 34 (1961) 283-284.
Inequalities. A Note on the Probabilistic, *Kuang, H.P.* 34 (1961) 245-246.
Inequalities. Abstract Structure of, *Soble, A.B.* 31 (1958) 179-184.
Inequalities. An Analytical Method for Solving Basic, *Coburn, R.K.* 34 (1961) 345-348.
Inequalities. An Approach to Trigonometric, *Ehret, Harold.* 43 (1970) 254-257.
Inequalities and Differential Equations. Linear Derivative, *Ettlinger, H.J.* 11 (1936) 126-130.
Inequalities as a Basis for Statistical Tests. Tchebycheff, *Smith, C.D.* 28 (1955) 185-195.
Inequalities Between the Arithmetic, Geometric and Harmonic Means. Geometrical Interpretations of the, *Shisha, O.* 39 (1966) 268-269.
Inequalities Concerning the Areas Obtained When One Triangle is Inscribed in Another. *Rigby, J.F.* 45 (1972) 113-116.
Inequalities. Diamond, *Klamkin, Murray S. and Schlesinger, Ernest C.* 50 (1977) 96-98; *Comment* 50 (1977) 276.
Inequalities. Extensions of Some Geometric, *Klamkin, Murray S.* 49 (1976) 28-30.
Inequalities. Extensions of the Weierstrass Product, *Klamkin, Murray S. and Newman, D.J.* 43 (1970) 137-141.
Inequalities for Integrals. Elementary, *Eliezer, C.J.* 45 (1972) 89-91.
Inequalities for Loci in Analytic Geometry. A Use of, *Jennrich, Robert I. and Killgrove, Raymond B.* 35 (1962) 105-106.
Inequalities for $\sigma(n)$ and $\phi(n)$. *Annapurna, U.* 45 (1972) 187-190; *Comment* 46 (1973) 161.
Inequalities for the Derivatives of Polynomials. *Boas, Ralph P., Jr.* 42 (1969) 165-174.
Inequalities for the Wallis Product. *Everett, C.J.* 43 (1970) 30-33.
Inequalities for Two Triangles. Some, *Carlitz, Leonard.* 45 (1972) 43-44.
Inequalities from Young's Inequality. An Elementary Derivation of the Cauchy, Hölder, and Minkowski, *Tolsted, Elmer.* 37 (1964) 2-12.
Inequalities. Geometric Interpretations of Some Classical, *Ercolano, Joseph L.* 45 (1972) 226.
Inequalities. On Two Famous, *Lange, L.H.* 32 (1959) 157-160.
Inequalities. Trigonometric, *Byrne, William E.* 7:1 (1932) 14-17.
Inequalities via the Polar Moment of Inertia. Geometric, *Klamkin, Murray S.* 48 (1975) 44-46.
Inequality: *see also* Arithmetic Mean, Geometric Mean.
Inequality. A Four Circle, *Sloss, James M.* 37 (1964) 327-330.
Inequality. An Ellipse, *Klamkin, Murray S. and McLenaghan, R.G.* 50 (1977) 261-263.
Inequality. An Integral, *Doran, Robert S.* 44 (1971) 267.
Inequality. An Oppenheim, *Trigg, Charles W.* 36 (1963) 244.
Inequality and the Chordal Metric. Ptolemy's, *Apostol, Tom M.* 40 (1967) 233-235.
Inequality Associated with the Malfatti Problem. On Goldberg's, *Gabai, Hyman and Liban, Eric.* 41 (1968) 251-252.
Inequality for Conditional Distributions. An, *Johnson, B.R.* 47 (1974) 281-283.
Inequality for Elliptic and Hyperbolic Segments. An, *Golomb, Michael and Haruki, Hiroshi.* 46 (1973) 152-155.
Inequality for the Pedal Triangle. An Exact Perimeter, *Zirakzadeh, A.* 39 (1966) 96-99.
Inequality for the Perimeter of the Orthic Triangle. An, *Carlitz, Leonard.* 39 (1966) 289.
Inequality]. Notes [on $\sin(\alpha+\beta)$ and the Incenter, *Lin, Tien-Hsung.* 38 (1965) 158-159; *Comment* 40 (1967) 28.
Inequality of Euler. The Orthic Triangle and an, *Chakerian, G.D.* 46 (1973) 219-220.
Inequality. On An Elementary [Logarithm], *Kai-Meng, Chan.* 42 (1969) 240.
Inequality. On Schwarz's, *Goldberg, Seymour.* 35 (1962) 300-301.

Inequality Principles. *Sanders, S.T.* 4:4 (1929) 7-8.
Inequality. Proof without Words: A Truly Geometric, *Gallant, Charles.* 50 (1977) 98; *Comment* 50 (1977) 277.
Inequality to Curve Fitting. An Application of Schwarz's, *Thoro, Dmitri.* 35 (1962) 12.
Inertia: *see also* Moment of.
Inexpensive Computer Graphing of Surfaces. *Smith, David A.* 50 (1977) 143-147.
Infinite Classes of Harmonic Integers. *Bergquist, J.W. and Foster, Lorraine L.* 40 (1967) 128-132.
Infinite Complementing Sets. *Makowski, Andrzej.* 45 (1972) 162-163.
Infinite Descent Method to Prove Pythagorean Principle. An, *Gandhi, J.M.* 30 (1957) 250.
Infinite Numerical Series in Closed Form. Evaluation of Certain Classes of, *Fain, Bill W.* 26 (1953) 121-126.
Infinite Series. An, *Byrne, William E.* 17 (1943) 292-295.
Infinite Series and Taylor and Fourier Expansions. *James, Robert C.* 25 (1952) 269-272; 26 (1952) 21-31.
Infinite Series by the Method of Iteration. The Solution of the Trinomial Equation in, *Hall, Newman A.* 15 (1941) 219-229.
Infinite Series. Classroom Discussion of a Question on, *Simons, H.A.* 22 (1948) 53.
Infinite Series. Shortcut to Summation of, *Ehrenburg, D.O.* 39 (1966) 93-96.
Infinite Series. The Solution of Algebraic Equations by, *Lewis, Arthur J.* 10 (1935) 80-95.
Infinite Set of Formulas Connecting Binomial Coefficients. An, *Graesser, R.F.* 32 (1959) 153-154.
Infinite Set of] Positive Integers Onto [with Probability One]? Are Many 1-1 Functions on the [, *Neuts, Marcel F.* 41 (1968) 103-109.
Infinite Sets. C.S. Peirce's Philosophy of, *Dauben, Joseph W.* 50 (1977) 123-135.
Infinite Sums of Bessel Functions. On, *Levi, Leo.* 33 (1959) 108.
Infinitesimal and Finite Integration of (1/x). *Maizlish, Yetta V.* 4:8 (1930) 19-21.
Infinitesimals and Integration. *Lightstone, A.H.* 46 (1973) 20-30.
Infinitude of Primes. The, *Trigg, Charles W.* 47 (1974) 162; *Sequel* 48 (1975) 92-96.
Infinity--Aborning. The Concept--, *James, Glenn.* 28 (1954) 64.
Infinity. Euclid and, *Sanders, S.T.* 4:7 (1930) 15-22.
Infinity in Projective Geometry. Elements at, *Court, Nathan Altshiller.* 19 (1944) 141-146.
Infinity--Its Cause and Cure. *Millsaps, Knox.* 17 (1943) 258-260.
Infinity of Unknowns in Linear Topological Spaces--An Abstract. On the Solution of Equations in an, *Köthe, Gottfried.* 11 (1937) 185.
Infinity]. The Gnome and the Pearl of Wisdom: A Fable [of, *Willmott, Richard.* 50 (1977) 141-143; *Comment* 50 (1977) 223.
Influence of Mathematics on the Philosophy of Descartes. The, *Moorman, R.H.* 17 (1943) 296-307.
Influence of Mathematics on the Philosophy of Leibniz. The, *Moorman, R.H.* 19 (1944) 131-140.
Influence of Mathematics on the Philosophy of Spinoza. The, *Moorman, R.H.* 18 (1943) 108-115.
Influence of Newtonian Mathematics on Literature and Aesthetics. The, *Kline, Morris.* 28 (1954) 93-102.
Influence of Tidal Theory Upon the Development of Mathematics. The, *Bateman, H.* 18 (1943) 14-26.
Information Retrieval. *Lamperti, John.* 26 (1953) 228-229.
Information Theory. *Rogers, Hartley, Jr.* 37 (1964) 63-78.
Information Theory. An Introduction to, *Marcus, Michael.* 36 (1963) 207-218.
Inner Product of Two Circles. *Amir-Moéz, Ali R.* 29 (1956) 269-270.
Inner Products of Multilinear Vectors. *Pyle, H. Randolph.* 37 (1964) 93-100.
Inquiries in Mathematics. *Brown, Bancroft H.* 22 (1949) 151-156.
Inscribed Circles. Six Equal, *Bankoff, Leon.* 36 (1963) 65-66.
Inscribed in a Convex Curve. Minimum Triangles, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 256-260.
Inscribed in Another. Inequalities Concerning the Areas Obtained When One Triangle is, *Rigby, J.F.* 45 (1972) 113-116.
Inscribed in Two Intersecting Circles. Circles, *Bankoff, Leon.* 38 (1965) 43.
Inscribed Triangle. A Theorem on an, *Bottema, O.* 47 (1974) 34-36.
Insights or Trick Methods [for Summing Series]. *O'Toole, A.L.* 15 (1940) 35-38.
Installment Payment Plans. A Comparison of Methods for Finding the Interest Rate in, *Stelson, H.E.* 11 (1937) 172-176.
Installment Payments. The Simple-Interest Rate Implied in, *Feldman, Emanuel.* 24 (1951) 278-280.
Installment Purchase. Rate of Interest Paid on a Certain, *Nichols, Irby C.* 6:4 (1932) 14-16.
Installment Purchases. Computation of the Simple Interest Rate in, *Stelson, H.E.* 9 (1935) 135-138.
Instant Insanity." A Note on ", *Brown, T.*

A. 41 (1968) 167-169; *Sequel* 43 (1970) 20-23.
Instant Insanity." An Improved Solution to ", *Schwartz, Benjamin L.* 43 (1970) 20-23.
Instant Insanity" Problem. A Diagrammatic Solution to ", *Grecos, A.P. and Gibberd, R.W.* 44 (1971) 119-124.
Instruction]. A Background of Understanding for General Mathematics [, *Madden, Richard.* 25 (1952) 229-232.
Instruction. Types of Learning Products of Evaluation of, *Georges, J.S.* 16 (1941) 90-101.
Instructor's Notebook. Random Jottings From an, *Read, Cecil B.* 18 (1944) 205-211.
Instructors of Mathematics. To Young, *Russell, Helen H.* 22 (1948) 54-55.
Insurance. A Problem in, *Nichols, Irby C.* 4:8 (1930) 5-6.
Insurance for the Mathematically Trained. Opportunities in, *Rosser, Harwood.* 25 (1952) 205-210.
Insurance Policies. Comparison of One, Three, and Five-Year Fire, *Nichols, Irby C.* 16 (1942) 338-340.
Integer: *see also* Gaussian, Odd, Positive.
Integer and the One with the Reversed Order of Digits. A Relationship Between an, *Hickerson, Dean R.* 47 (1974) 36-39.
Integer as the Harmonic Mean of Integers. On Representing an, *Golomb, Solomon W.* 46 (1973) 241-244; *Comment* 47 (1974) 234.
Integer N Into m Unequal Integral Parts. A Recursive Formula for the Number of Partitions of an, *Konečný, Václav.* 45 (1972) 91-94.
Integer Polynomials with Prescribed Integer Values. *Small, Charles.* 46 (1973) 92-94.
Integer Powers. A Representation of Certain, *Bell, E.T.* 20 (1945) 3-4.
Integer Programming Handicap System in a "Write Ring Tossing Game." An, *Schuster, Eugene F.* 48 (1975) 134-142.
Integer Quotients of Products of Factorials. A Generalised Form of a Theorem on, *Horadam, E.M.* 36 (1963) 98-100.
Integer Representations and Complete Sequences. *Brown, J.L., Jr.* 49 (1976) 30-32.
Integer Solutions of [the Digital Expression] of AB/(A+B). *Trigg, Charles W.* 34 (1960) 119.
Integer 38. A Curious Property of the, *Just, Erwin and Schaumberger, Norman.* 46 (1973) 221; *Sequel* 48 (1975) 221-223.
Integers. A Function Whose Values are, *Arkin, Joseph.* 38 (1965) 196-199.
Integers. A Note on Consecutive Composite, *Ecklund, E.F., Jr. and Eggleton, Roger B.* 48 (1975) 277-281.
Integers. A Note on the Factorization of, *Christilles, William Edward.* 33 (1960) 283-286.
Integers. A Note on the k-Free, *Nymann, J.E.* 48 (1975) 233-234.
Integers. An Apparently Algebraic Property of the, *Berlinghoff, W.P.* 46 (1973) 211-213.
Integers and the Sum of the Factorials of Their Digits. *Poole, George D.* 44 (1971) 278-279; *Comment* 45 (1972) 278.
Integers as Sums of Odd Composite Integers. On Representing, *Vaidya, A.M.* 48 (1975) 221-223.
Integers. Building Triangles with, *Robinson, L.V.* 17 (1943) 239-244.
Integers Defined by Sieves. On Certain Sequences of, *Gardiner, Verna, Lazarus, R., Metropolis, N. and Ulam, S.M.* 29 (1956) 117-122; *Sequel* 31 (1958) 277-280.
Integers. Distribution of Digits in, *Boas, Ralph P., Jr.* 50 (1977) 198-201.
Integers. Fermat's Equation of $A^p + B^p = C^p$ for Matrices of, *Brenner, J.L. and De Pillis, J.* 45 (1972) 12-15.
Integers Having Equal Sums of Squares. Consecutive, *Vigder, J.S.* 38 (1965) 35-42.
Integers in a Given Basis. An Identity for the Sum of Digits of, *Mauclaire, Jean-Loup.* 47 (1974) 225.
Integers in [Arithmetic Progressions]. An Arithmetical Problem Involving the Sum of, *Young, Samuel S.H.* 43 (1970) 89-92.
Integers in Forms. The Representation of, *Hull, Ralph.* 14 (1940) 235-252.
Integers. Infinite Classes of Harmonic, *Bergquist, J.W. and Foster, Lorraine L.* 40 (1967) 128-132.
Integers. k-Transposable, *Kahan, Steven.* 49 (1976) 27-28; *Comment* 49 (1976) 102.
Integers. Kaprekar's Routine With Five-Digit, *Trigg, Charles W.* 45 (1972) 121-129.
Integers less than p belonging to $ep^{r-1} \pmod{p^r}$. The Existence of, *Maxfield, John E. and Maxfield, Margaret W.* 33 (1960) 219-220.
Integers, No Three in Arithmetic Progression. *Chiang, Pou-Shun and Macintyre, A.J.* 41 (1968) 128-130.
Integers] of Alan Sutcliffe. Note on a Problem [on, *Kaczynski, T.J.* 41 (1968) 84-86.
Integers of the Form $(2^{p-1}-1)/p$. On, *Goodman, Adolph.* 16 (1942) 238-239.
Integers]. On Applications of van der Waerden's Theorem [on Partitions of, *Rabung, John R.* 48 (1975) 142-148.
Integers. On Complementing Sets of Non-negative, *Vaidya, A.M.* 39 (1966) 43-44; *Comment* 39 (1966) 300-301.
Integers. On the Representation of, *Lee, William Y.* 47 (1974) 150-152.

Integers. On Unequal Partitions of, *Sugai, Iwao.* 33 (1960) 129-138; *Sequel* 34 (1960) 101-103.
Integers. Self-Generating, *Schwartz, Benjamin L.* 46 (1973) 158-160.
Integers. Some Aspects of Primes and, *Sanders, S.T.* 5:4 (1930) 19-23.
Integers. Some Associative Operations on, *Lambek, J. and Moser, Leo.* 29 (1955) 59-62.
Integers That are Multiplied When Their Digits are Reversed. *Sutcliffe, Alan.* 39 (1966) 282-287; *Sequels* 41 (1968) 84-86; 43 (1970) 89-92.
Integers to Generate Graphs. A Decomposition of the, *Dilley, Norman R.* 39 (1966) 30-35.
Integers, Unique Factorization and Ideals. *Diamond, Louis E.* 30 (1956) 29-40.
Integers Whose Digits Are All Ones. Factoring, *Hayashi, Elmer K.* 49 (1976) 19-22.
Integers Whose Sum of Squares is a Perfect Square. Consecutive, *Alfred, Brother U.* 37 (1964) 19-32; *Sequels* 37 (1964) 218-220; 40 (1967) 194-199; 41 (1968) 255-258.
Integers Whose Sum of Squares is a Perfect Square. Note on Consecutive, *Philipp, Stanton.* 37 (1964) 218-220; *Comment* 38 (1965) 106.
Integers with Equal Sums of Squares. n and n + 1 Consecutive, *Alfred, Brother U.* 35 (1962) 155-164.
Integrability. One-Sided Limits and, *Jones, W.R. and Landau, M.D.* 45 (1972) 19-21.
Integral. A Classroom Presentation of the Definite, *Manheim, Jerome H.* 34 (1961) 157-158.
Integral. An Evaluation of a Certain Double, *Garver, Raymond.* 8 (1933) 38-40.
Integral and First Order Expansion Problem. A Contour, *Doole, H.P.* 20 (1945) 79-85.
Integral Arising in Quantum Mechanics. On a Certain, *Buchanan, H.E.* 10 (1936) 247-248.
Integral. Completion of Seminormed Spaces and the Daniell Process of Extending an, *Lamadrid, Jesús Gil de.* 33 (1960) 199-210.
Integral Equations and Functionals. *Michal, Aristotle D.* 24 (1950) 83-95.
Integral Equations. Introduction to a Study of a Type of Functional Differential and Functional, *Robinson, Lewis Bayard.* 23 (1950) 183-188.
Integral Inequality. An, *Doran, Robert S.* 44 (1971) 267.
Integral] $\int_a^x t^y dt$. Note on [the, *Pascual, Michael J.* 35 (1962) 175.
Integral of] a Power of x. Logarithmic Properties of [an, *Sewell, W.E.* 15 (1940) 55-60.
Integral. On a Laplace, *Haruki, Hiroshi.* 43 (1970) 151-153.
Integral. Probability Theory and the Lebesgue, *Botts, Truman.* 42 (1969) 105-111.
Integral Property of Cubics and Quadratics. An, *Talbot, Walter R.* 37 (1964) 325.
Integral Right Triangles. A Chart of, *Ross, W. Bruce.* 23 (1949) 110-114.
Integral] $\int \sec^3 x\, dx$. [The, *Konhauser, Joseph D.E.* 38 (1965) 45.
Integral] $\int \sec \theta d\theta$. A Different Technique for the Evaluation of [the, *Whyburn, Clifton T.* 42 (1969) 113.
Integral Sign. Taking Limits Under the, *Cunningham, F., Jr.* 40 (1967) 179-186.
Integral] $\int_0^\infty (\sin x/x)dx$. Note on [the, *Williams, Kenneth S.* 44 (1971) 9-11.
Integral Transformation: A Simple Proof. The Probability, *Schuster, Eugene F.* 49 (1976) 242-243.
Integral Triangles. Primitive, *Aude, H. T.R.* 16 (1942) 280-283.
Integral Twins. *Brown, Bancroft H.* 29 (1956) 275-276.
Integrals and Equal Division Sums. *Morduchow, Morris.* 27 (1953) 65-68.
Integrals as Mappings in Elementary Applications. Riemann, *Pursell, Lyle E.* 37 (1964) 311-317.
Integrals by Heaviside Operators. Evaluation of Infinite, *Thomson, J.F.* 15 (1941) 173-176.
Integrals By Means of the Definition. Evaluation of Double, *Lindstrom, Peter A.* 43 (1970) 85-89.
Integrals. Elementary Inequalities for, *Eliezer, C.J.* 45 (1972) 89-91.
Integrals. Escalating, *Labelle, Gilbert.* 38 (1965) 168.
Integrals for Arc Length. A Class of Functions Having Elementary, *Dotson, W.G., Jr. and Savage, R.G.* 43 (1970) 42-43.
Integrals for Genocchi Numbers. Some, *Gandhi, J.M.* 33 (1959) 21-23.
Integrals in a Multiply Connected Region. Line, *Brown, Arthur B.* 34 (1961) 230-232.
Integrals. Multiple Interpretations of Some, *Hoggatt, Verner E., Jr.* 34 (1961) 207-210.
Integrals Occurring in Havelock's Work on the Resistance of Ships. Some Definite, *Bateman, H.* 23 (1949) 1-4.
Integrals of Linear Difference and Differential-Difference Equations. A Symbolic Method for Finding, *Cooke, Kenneth L.* 31 (1958) 121-126.
Integrals. On Improper Multiple, *Beesack, Paul R.* 43 (1970) 113-123.
Integrals] $\int \sin^{2n} ax\, dx$ and $\int \cos^{2n} ax\, dx$. A Method for Solving [the, *Pennisi, Louis L.* 29 (1956) 271-272.
Integrals. Use of Hyperbolic Substitution

for Certain Trigonometric, *Viertel, William K.* 38 (1965) 141-144.
Integrating Odd Powers of Sec x. *Parker, W. Vann.* 10 (1936) 294-296.
Integration. A Connection Between Two Theorems in the Theory of Riemann-Stieltjes, *Cargo, Gerald T.* 39 (1966) 202-203.
Integration. A Note on, *Goffman, Casper.* 44 (1971) 1-4.
Integration. A Note on, *Ludeke, Carl A.* 14 (1940) 253-255.
Integration by Parts. Geometric Derivation of the Formula for, *Ingersoll, Benham M.* 18 (1944) 280-283.
Integration by Parts. On the Problem of, *Smith, C.D.* 3:3 (1928) 7-8.
Integration for Functions of a Complex Variable. A New Approach to, *Trahan, Donald H.* 38 (1965) 132-140.
Integration. Infinitesimals and, *Lightstone, A.H.* 46 (1973) 20-30.
Integration. Multiple, *Buck, R.C.* 20 (1945) 33.
Integration of a Rational Function of Trigonometric Functions and Quadratic Radicals. Note on the, *Smith, H.L.* 6:3 (1931) 15-17.
Integration of Functions in a Banach Space. *Macphail, M.S.* 20 (1945) 69-78.
Integration of Functions of the Form $e^{ax}f(x)$. On, *Hakala, Reino W.* 27 (1953) 69-74; *Comment* 28 (1954) 115-119.
Integration of Inverse Functions. The, *Staib, John H.* 39 (1966) 223-224.
Integration of (1/x). Infinitesimal and Finite, *Maizlish, Yetta V.* 4:8 (1930) 19-21.
Integration of Products of Functions by R.W. Hakala, V. 27 (1953) 2. Remarks on the, *Spiegel, Murray H.* 28 (1954) 115-119.
Integration of [the Rational Forms] $R(\sin\theta, \cos\theta)$. *Byrne, William E.* 6:7 (1932) 27-30.
Integration of x^n. Fermat's, *Boyer, Carl B.* 20 (1945) 29-32.
Integration. The Midpoint Method of Numerical, *Hammer, Preston C.* 3:1 (1958) 193-195.
Interchange of a Loop. Defining the, *Schwartz, Benjamin L.* 43 (1970) 141-143.
Interest. A Comparison of Simple and Compound, *Stelson, H.E.* 19 (1945) 336-340.
Interest. A Note on Simple, *Philip, Maximilian.* 19 (1945) 414-417.
Interest. Compound, *Garver, Raymond.* 7:6 (1933) 3-8.
Interest from Interest Tables. Saving Time in Calculating Actual, *Nichols, Irby C.* 7:4 (1933) 5-6.
Interest Paid on a Certain Installment Purchase. Rate of, *Nichols, Irby C.* 6:4 (1932) 14-16.
Interest Problems. Harmonic Series in, *Shapiro, Isidor F.* 13 (1939) 230.
Interest] Rate Corresponding to a Discount of 1% per Month. The Effective [, *Nichols, Irby C.* 6:5 (1932) 25-28.
Interest Rate Implied in Installment Payments. The Simple-, *Feldman, Emanuel.* 24 (1951) 278-280.
Interest Rate in Installment Payment Plans. A Comparison of Methods for Finding the, *Stelson, H.E.* 11 (1937) 172-176.
Interest Rate in Installment Purchases. Computation of the Simple, *Stelson, H.E.* 9 (1935) 135-138.
Interest] Schedule at the Rate of One-Half of One Per Cent Per Week. The Effect of a Certain Weekly [, *Samuels, E.S.* 7:1 (1932) 20-21.
Interesting Algebraic Identities. Some, *McCulley, William S.* 34 (1961) 203-206.
Interesting Continued Fraction. An, *Shallit, Jeffrey.* 48 (1975) 207-211.
Interesting High School Freshmen in Algebra. *Bostick, Lucille M.* 4:5 (1930) 3-5.
Interesting Locus Problem. An, *Byrne, William E.* 7:5 (1933) 6-9.
Interesting Metric Space. An, *Hildebrand, S.K. and Milnes, Harold Willis.* 41 (1968) 244-247.
Interesting Metric Space. On An, *Shantaram, R.* 43 (1970) 95-97.
Interesting Property of Square Matrices. An, *Kesavan, S.* 44 (1971) 99-101.
Interesting the Superior Student. *Sleight, E.R.* 10 (1935) 58-62.
Interrelations Between Mathematics and Philosophy in the Last Three Centuries. *Kennedy, E.S.* 16 (1942) 290-298.
Intersection. Formulas for a Curved Road, *Hickerson, T.F.* 36 (1963) 245-246.
Intersection of Triangle Transversals. Point of, *Bailey, D. Moody.* 37 (1964) 331-333.
Intersection Points of Perimeter Bisectors. The, *Sloyan, Sister M. Stephanie.* 36 (1963) 312-313.
Intersections of Sets. The Application of a Function to Unions and, *McAllister, Byron L.* 42 (1969) 93-94.
Intersections. The Demonstration of, *Burg, W.V.* 13 (1939) 192-193.
Interview with George Bergman). What Makes a Genius Tick? (An, *Wallace, Mike.* 31 (1958) 282.
Intrinsic Decimals. *Aude, H.T.R.* 8 (1933) 8-12.
Intrinsic Decimals. *McGiffert, James.* 7:3 (1932) 7-10; *Sequel* 8 (1934) 103-107.
Intrinsic Derivative of Generalized Order. On the, *Sasayama, Hiroyoshi.* 30 (1957) 135-143.

Introducing Arguments into Freshman Algebra. On, *Huff, Gerald B.* 28 (1955) 147-148.
Introducing Symbolic Logic. *Dimmick, Edgar L.* 30 (1956) 18-24.
Introducing the Study of Proportion in High School Geometry. *Rickey, F.A.* 6:5 (1932) 8-9.
Introduction and Presentation of the Formula as the First Unit in Ninth Mathematics [: Algebra Education]. *Riley, Martin S.* 7:1 (1932) 5-10.
Introduction of Invariant Theory Into Elementary Analytic Geometry. The, *Bush, L.E.* 12 (1937) 82-89, 131-137.
Introduction to a Study of a Type of Functional Differential and Functional Integral Equations. *Robinson, Lewis Bayard.* 23 (1950) 183-188.
Introduction to Complex Numbers. *Diamond, Louis E.* 30 (1957) 233-249.
Introduction to Heaviside's Calculus. *Johnson, Wm. C., Jr.* 12 (1938) 231-241.
Introduction to Information Theory. An, *Marcus, Michael.* 36 (1963) 207-218.
Introduction to Trigonometry from the Historical View Point. *Webber, W. Paul.* 5:5 (1931) 14-17.
Introductory Comments on Fermat's Last Theorem. Some, *James, Glenn.* 27 (1954) 213-216.
Introductory Exercises in the Manipulation of Fourier Transforms. Some, *Cameron, Robert H.* 15 (1941) 331-356.
Intuitive Geometry. On, *Webber, W. Paul.* 6:2 (1931) 9-12.
Invariance of Circle Product. *Amir-Moéz, Ali R.* 33 (1959) 35-38.
Invariance Properties of Maximum Likelihood Estimators. *Tan, Peter and Drossos, Constantin.* 48 (1975) 37-41.
Invariant Relation in Chains of Tangent Circles. An, *Michiwaki, Yoshimasa, Ōyama, Makoto and Hamada, Toshio.* 48 (1975) 80-87.
Invariant. Subadditivity is a Rotation, *Laatsch, Richard G.* 37 (1964) 195-196.
Invariant System of Two Binary Cubics. A Geometrical Interpretation of the, *Rolfe, Kathryn B.* 19 (1945) 211-220.
Invariant Theory Into Elementary Analytic Geometry. The Introduction of, *Bush, L.E.* 12 (1937) 82-89, 131-137.
Invariant under Root Powering. Equations, *Finan, E.J. and McRae, V.V.* 21 (1947) 29-34.
Invariant Under the Symmetric G_{120} with Special Reference to Quintics and Sextics. Algebraic Surfaces, *Walden, Earl.* 15 (1941) 163-172.
Invariants and Elementary Mathematics. *Craig, Homer V.* 13 (1939) 176-182.
Invariants Associated with a Family of Curves. *Nowlan, F.S. and Aucoin, A.A.* 37 (1964) 132-138.
Invariants. Tensor Algebra and, *Wade, T. L.* 19 (1944) 3-10; 20 (1945) 5-10.
Inverse Circular Functions. On the, *Smith, H.L.* 4:3 (1929) 14-19.
Inverse Function. The Existence of the Derivative of the, *Starr, Norton.* 44 (1971) 189-190.
Inverse Functions. Continuity of, *Hoffman, Michael J.* 48 (1975) 66-73.
Inverse Functions. On, *Webber, W. Paul.* 6:7 (1932) 22-24.
Inverse Functions. The Integration of, *Staib, John H.* 39 (1966) 223-224.
Inverse Trigonometric and Hyperbolic Functions of a Complex Variable. Remarks on the, *Pennisi, Louis L. and Sjoblom, L.* 33 (1959) 39-42.
Inverse Trigonometric Functions. Teaching, *Potter, Raymond S.* 34 (1961) 281-282.
Inverses. Geometry of Generalized, *Amir-Moéz, Ali R. and Newman, T.G.* 43 (1970) 33-36.
Inverses of Primes. On Sums of, *Jordan, J.H.* 38 (1965) 259-262.
Inversion. A Note on Matrix, *Geist, A. Polter* [sic]. 46 (1973) 226.
Inversion Formula. Complements to an, *Widder, D.V.* 46 (1973) 1-7.
Inversion. Harmonic, *Mandan, Sahib Ram.* 33 (1959) 71-78.
Inversion of the Lambert Transform. An, *Widder, D.V.* 23 (1950) 171-182.
Inversion of the Laplace Transformation. The, *Erdélyi, A.* 24 (1950) 1-6.
Inversion Procedure? A Simple Matrix, *Squire, William.* 37 (1964) 214.
Inversion with Respect to the Central Conics. *Childress, Noel A.* 38 (1965) 147-149.
Inversions. Vector Space Techniques in Quadric, *Amir-Moéz, Ali R.* 41 (1968) 86-88.
Inverting Matrices. Two Methods of, *Lightstone, A.H.* 41 (1968) 1-7.
Investigation of Nine-Digit Determinants. An, *Bicknell, Marjorie and Hoggatt, Verner E., Jr.* 36 (1963) 147-152.
Investigative Method vs. the Traditional Method of Studying Plane Geometry. The, *Miller, Leroy S.* 6:2 (1931) 6-8.
Investment. Problems from the Field of, *Nichols, Irby C.* 3:7 (1929) 14-17.
Investment Under Risk. Optimal, *Gallin, Daniel and Shapiro, Edwin.* 49 (1976) 235-238.
Involutions in [the Group] S_3. A New Series of Line, *Wylie, C.R., Jr.* 23 (1950) 125-131.
Involutions in [the Group] S_3 Defined as Point Transformations of a V_4^2 in S_5 Into Itself. A Series of Line, *Wylie, C.R., Jr.* 14 (1939) 125-133.
Involutions on a Line. Finite Groups Generated by, *Wayne, Alan.* 24 (1951) 249-251.

Irrational. A Geometric Proof that $\sqrt{2}$ is, *Turner, Barbara.* 50 (1977) 263.
Irrational Base. A Number System with an, *Bergman, George M.* 31 (1957) 98-110.
Irrational]. Look, Ma, No Primes [$\sqrt{n}$ is, *Fine, Nathan J.* 49 (1976) 249; *Comment* 50 (1977) 175.
Irrational Number. The, *Edgett, George L.* 9 (1935) 193-196.
Irrational Numbers. *Diamond, Louis E.* 29 (1955) 89-99.
Irrationalities. A Method of Establishing Certain, *Maier, E.A. and Niven, Ivan.* 37 (1964) 208-210.
Irrationality]. A New Twist to an Old Problem [on, *Weyers, Donald V.* 38 (1965) 106.
Irrationality Proof for nth Roots of Positive Integers. A Simple, *Lange, L.J.* 42 (1969) 242-243.
Irrationality Proofs. Theodorus', *McCabe, Robert L.* 49 (1976) 201-203.
Is the Algebra Taught in Colleges Really 'College Algebra?' *Willerding, Margaret F.* 27 (1954) 201-203.
Is the Tree of Knowledge Getting Top-Heavy? *Emery, Delbert F.* 19 (1945) 359-362.
Isolate Numbers. *Ransom, William R.* 17 (1943) 268-269.
Isolation, A Game on a Graph. *Ringeisen, R.D.* 47 (1974) 132-138.
Isomorphism. A Note on a Simple Matrix, *Robinson, Donald W.* 32 (1959) 213-215.
Isomorphism. Abstract, *Studley, Duane.* 22 (1949) 191-193.
Isomorphism Theorem for Factor Groups. A General, *Reed, Irving S.* 24 (1951) 191-194.
Isomorphisms. Anti-Isomorphisms vs., *Pursell, Lyle E.* 44 (1971) 102-103; *Comment* 44 (1971) 243.
Isoperimetric Problem in the Plane. The, *Bredon, Glen E.* 30 (1956) 63-69.
Isoperimetric Problem on a Lattice. An, *Daykin, D.E.* 46 (1973) 217-219.
Isoperimetric Problems in the Plane. A Simple Approach to, *DeMar, Richard F.* 48 (1975) 1-12; *Sequel* 48 (1975) 219-221.
Isoperimetric Problems in the Plane" and an Epilogue. A Note on DeMar's "A Simple Approach to, *Garvin, Alfred D.* 48 (1975) 219-221.
Isosceles Orthogonality. On, *Davis, Harry F.* 32 (1959) 129-131.
Isotone and Antitone Fractions. *Gould, H. W.* 36 (1963) 240-244.
Iteration Algorism for Generating cos nx and sin nx. A Simple, *Karst, Edgar.* 34 (1961) 271-273.
Iteration and Correction Formulas for the Variance of a Sequence. *Pascual, Michael J.* 42 (1969) 249-252.
Iteration. Finding the Nth Root of a Number by, *Laufer, Henry.* 36 (1963) 157-162; *Comment* 36 (1963) 315-316.
Iteration of Means. The, *Rosenberg, Lloyd.* 39 (1966) 58-62.
Iteration. On Approximating the Roots of an Equation by, *Hines, Jerome.* 24 (1951) 123-127.
Iteration. The Convergence of Jacobi and Gauss-Seidel, *Venit, Stewart.* 48 (1975) 163-167.
Iteration. The Solution of the Trinomial Equation in Infinite Series by the Method of, *Hall, Newman A.* 15 (1941) 219-229.
Iterative Approximation for Finding the N-th Root of a Number. An, *Gould, H. W.* 33 (1959) 61-69.
Iterative Method and Its Generalization to Positive Integral Roots of Order n. Square Roots by an, *Bauerochse, Tom R. G.* 39 (1966) 219-223.
Iterative Process. On the Convergence Rate of an, *Gregory, Robert T.* 29 (1955) 63-68.

J

Jackson's Theorem on Mean-Approximation. An Elementary Proof of, *Cheney, E.W.* 38 (1965) 189-191.
Jacobi and Gauss-Seidel Iteration. The Convergence of, *Venit, Stewart.* 48 (1975) 163-167.
Jacobian Elliptic Functions. Some Nonlinear Differential Equations Satisfied by the, *Soudack, A.C.* 37 (1964) 138-147.
Jacobi's Solution of Linear Diophantine Equations. *Waterman, M.S.* 48 (1975) 159-163.
Japan and China. Mathematics In, *Colpitts, Julia T.* 9 (1935) 123-129.
Japan, by M. Kuniyeda. A Report on Present Tendencies in the Development of Mathematical Teaching in, *Seidlin, Joseph.* 11 (1937) 231-240.
Johann Friedrich Pfaff. *Dunnington, G. Waldo.* 11 (1937) 263-267.
John Napier and His Logarithms. *Sleight, E.R.* 18 (1944) 145-152.
Jordan Normal Form [of a Matrix]. Concerning the, *Sinkhorn, Richard.* 41 (1968) 91-93.
Journals [Parts I-XIX]. A History of American Mathematics, *Finkel, Benjamin F.* 14 (1940) 197-210, 261-270, 317-328, 383-407, 461-468; 15 (1940) 27-34, 83-96, 121-128; 15 (1941) 177-190, 245-247, 294-302, 357-368, 403-418; 16 (1941) 64-78; 16 (1942) 188-197, 284-289, 341-344, 381-391; 17 (1942) 21-30.
Joy of Mathematics. The, *McGiffert, James.* 8 (1933) 27-31.

Junior College Association. A Report of the Mathematics Committee of the California, *Seidlin, Joseph.* 11 (1937) 385-389.

K

k-Free Integers. A Note on the, *Nymann, J.E.* 48 (1975) 233-234.
k-Transposable Integers. *Kahan, Steven.* 49 (1976) 27-28; *Comment* 49 (1976) 102.
Kaprekar's Periodic Oscillating Series. On, *Shah, A.P. and Vaidya, A.M.* 41 (1968) 253-255.
Kaprekar's Routine With Five-Digit Integers. *Trigg, Charles W.* 45 (1972) 121-129.
Kasner Plane. Some Analogs of the Triangle Geometry in the, *Chi-Ho, Loong.* 17 (1942) 8-12.
Kazarinoff. A Proof [of the Arithmetic Mean-Geometric Mean Inequality] that Would Please N.D., *Ogilvy, C. Stanley.* 38 (1965) 110.
Keep the Signless Numbers. *Ransom, William R.* 34 (1961) 156.
Kempe Catastrophe. Remarks on the Four Color Problem; The, *Saaty, Thomas L.* 40 (1967) 31-36.
Kepler]. The Harmony of the World [Copernicus and, *Kline, Morris.* 27 (1954) 127-139.
Keplerian Elliptic Motion. A Study of the Angular Velocity About a Point Between the Foci in, *Keller, M. Wiles.* 12 (1937) 13-20.
Kepler's Third Law. "Mean Distance" in, *Stein, Sherman K.* 50 (1977) 160-162.
Keuffel and Esser Logarithmic Spiral Curve. Theory of the, *Grummann, H.R.* 10 (1936) 167-170.
Khayyam's Solution of Cubic Equations. *Amir-Moéz, Ali R.* 35 (1962) 269-272.
Khazanov's Formulae [for Pythagorean Numbers]. On, *Horadam, A.F.* 36 (1963) 219-220.
King's [Chess] Problem. Combinations, Successions and the n-, *Abramson, Morton and Moser, William.* 39 (1966) 269-273.
Klein Bottle as an Eggbeater. The, *Brown, Richard L.W.* 46 (1973) 244-250.
Knight's Moves. 3 x 3 Matrices from, *Trigg, Charles W.* 36 (1963) 36.
Knocking a Cone into a Cocked Hat. *Lloyd, Daniel B.* 31 (1958) 201-204.
Know/Dont' Know Problems. A Calculus for, *Austin, A.K.* 49 (1976) 12-14.
Knowledge Getting Top-Heavy? Is the Tree of, *Emery, Delbert F.* 19 (1945) 359-362.
Koch Curve. A Generalization of the von, *Schneider, Joel E.* 38 (1965) 144-147.
Krasnoselski's Theorem on the Real Line. A Generalization of, *Hillam, Bruce P.* 48 (1975) 167-168.
Kummer Numbers. *Piza, Pedro A.* 21 (1948) 257-260.
Kummer Numbers] by P.A. Piza. Comment on Two Papers [Escalator and, *Becker, H. W.* 22 (1949) 213-214.
Kuratowski Closure and Complementation Problem. An Extension of the, *Chapman, Thomas A.* 35 (1962) 31-35.
Kuratowski Closure Axioms. The, *Ahmad, Shair.* 37 (1964) 296-297.

L

Labyrinths [and Graphs]. Economic Traversal of, *Fraenkel, A.S.* 43 (1970) 125-130; *Correction* 44 (1971) 12.
Ladders. The Crossed, *Arnold, H.A.* 29 (1956) 153-154.
Lagrangian Equations of Motion.' Comments on and additions to H.V. Craig's paper 'On Extensors and the, *Horton, C. W.* 23 (1949) 31-32.
Lagrangian Equations of Motion. On Extensors and the, *Craig, Homer V.* 22 (1949) 245-251.
Laguerre Transformations. The Magnilong Near-, *De Cicco, John.* 19 (1945) 229-235.
Laguerre's Axial Transformation. *Pedoe, Dan.* 48 (1975) 23-30.
Lambert Series. On Natural Boundaries of a Generalized, *Regan, Francis and Rust, Charles.* 31 (1957) 45-50.
Lambert Transform. An Inversion of the, *Widder, D.V.* 23 (1950) 171-182.
Lamina. Two Graphical Treatments of the Moment of Inertia of a Plane, *Holl, D. L.* 9 (1934) 18-21.
Language of Functions--A Survey and a Proposal. The, *Bush, George C.* 42 (1969) 259-262.
Laplace Integral. On a, *Haruki, Hiroshi.* 43 (1970) 151-153.
Laplace Transformation. The Inversion of the, *Erdélyi, A.* 24 (1950) 1-6.
Laplace's Contributions to Pure Mathematics. *Richeson, A.W.* 17 (1942) 73-78.
Laplace's Equation for a Semi-Infinite Strip. A Solution of, *Edstrom, Clarence R.* 45 (1972) 254-259; *Comment* 46 (1973) 162.
Laplacian of a Function in a Two Dimensional Bounded Domain, when the First Derivatives of the Function Vanish at the Boundary. On a Property of the, *De Fériet, J. Kampé.* 21 (1947) 74-79.
Last Theorem of Fermat Not Only a Problem of Algebraic Analysis but Also Probability Problem? The, *Elston, Fred G.* 28 (1955) 150-152.
Latin Squares. A Certain Bridge Tournament Seating Problem and, *Ward, James A.* 29 (1956) 249-253.

Lattice. An Isoperimetric Problem on a, *Daykin, D.E.* 46 (1973) 217-219.
Lattice of Cyclotomic Fields. A, *Chalkley, Roger.* 48 (1975) 42-44.
Lattice Parabolas. *DeTemple, Duane W. and Robertson, Jack M.* 50 (1977) 152-158.
Lattice Point Covering Property. On the Minimal Rectangular Region Which Has the, *Maier, E.A.* 42 (1969) 84-85.
Lattice Point Covering Theorem for Rectangles. The, *Niven, Ivan and Zuckerman, Herbert S.* 42 (1969) 85-86.
Lattice Point" Proof of the Infinitude of Primes. A ", *Chernoff, Paul R.* 38 (1965) 208.
Lattice Points. Convex Bodies and, *Scott, P.R.* 48 (1975) 110-112.
Lattice Points in Convex Sets. *Scott, P. R.* 49 (1976) 145-146.
Lattice Points. Unique Prime Factorization and, *De Boor, Carl and Schoenberg, I.J.* 46 (1973) 198-203.
Lattices and Convex Domains. Two-Dimensional, *Reich, Simeon.* 43 (1970) 219-220.
Lattices. Area-Diameter Relations for Two-Dimensional, *Scott, P.R.* 47 (1974) 218-221.
Laurent Expansions. A Note on, *Demos, Miltiades S.* 36 (1963) 42.
Law of Cosines. Remarks on the, *Olds, Edwin G.* 11 (1937) 324-326.
Law of Gravitation. On the, *Webber, W. Paul.* 6:1 (1931) 9-11.
Law of Sines and Law of Cosines for Polygons. The, *Kershner, R.B.* 44 (1971) 150-153.
Leaf Curves. On the, *Aucoin, A.A.* 43 (1970) 156-157.
Learn Mathematics? Why, *Olds, Edwin G.* 13 (1939) 329-335.
Learning. Copernicus, Representative of Polish Science and, *Karpinski, Louis C.* 19 (1945) 343-348.
Learning Products of Evaluation of Instruction. Types of, *Georges, J.S.* 16 (1941) 90-101.
Learning Theories and the Mathematics Curriculum. *Horton, Robert E.* 33 (1959) 79-98.
Least-Squares Line. A New, *Baker, G.A.* 22 (1949) 199-200.
Least Squares Problems. Linearization Transformations for, *Dotson, W.G., Jr.* 39 (1966) 178-183.
Lebesgue Integral. Probability Theory and the, *Botts, Truman.* 42 (1969) 105-111.
Lebesgue's Dominated Convergence Theorem. Weak Sufficient Conditions for Fatou's Lemma and, *Van der Vaart, H.R. and Yen, Elizabeth H.* 41 (1968) 109-117.
Lecture Method [of Teaching] in Developing Reflective Thinking. The Heuristic Method Versus the, *Forno, Dora M.* 5:7 (1931) 3-5.
Legendre Polynomials. Note on the Derivatives of the, *Peyser, Gideon.* 31 (1958) 210.
Legendre Polynomials. On Congruence Properties of, *Chatterjea, S.K.* 34 (1961) 329-336; *Correction* 35 (1962) 72.
Legendre Polynomials. Some Congruence Properties of the, *Carlitz, Leonard.* 34 (1961) 387-390.
Legendre Transformation. A Generalization of the, *Buschman, R.G. and Damaskos, N.J.* 33 (1960) 185-191.
Leibniz. The Influence of Mathematics on the Philosophy of, *Moorman, R.H.* 19 (1944) 131-140.
Lejeune Dirichlet. Notes on, *Dunnington, G. Waldo.* 12 (1938) 171-182.
Lending. Finding Truth in, *Morrill, John E.* 50 (1977) 30-32.
Length: *see also* Arc.
Length and Time. The Origin and Development of Tables of Weight, *Sleight, E. R.* 19 (1945) 236-243.
Length of the Circumferance of a Circle. Graphical Construction to Find Approximate, *Cicero-Pienkowski, Jerzy.* 30 (1956) 91-92.
Lesson in Graphing. A, *Stein, F. Max.* 36 (1963) 249-252.
L'Hôpital Rule for Indeterminate Forms ∞/∞. On the, *Hu, Men-Chang and Wang, Ju-Kwei.* 44 (1971) 217-218.
L'Hôpital's Rule] in Calculus. An Extension of an Elementary Theorem [, *Reed, Kennard W., Jr.* 42 (1969) 266.
Liberal Education. The Place of Mathematics in a, *Richardson, M.* 19 (1945) 349-358.
Libraries. Unpublished Mathematical Manuscripts in American, *Richeson, A.W.* 13 (1939) 183-188.
Limit by a Sequence of Triangles. Evaluation of a, *Springer, C.E.* 18 (1944) 185-187.
Limit Concept. Some Notes on the, *Hart, John B.* 25 (1952) 163-165.
Limit From a Well Known Physical Principle. A Proof of Euler's, *Shafer, Robert E.* 32 (1959) 211-212.
Limit of a Function and a Card Trick. *Amir-Moéz, Ali R.* 38 (1965) 191-196.
Limit of a Sequence. A Proof of the Formula Representing the Logarithm as the, *Matlak, R.F.* 39 (1966) 64-65.
Limit of $f(x)/f'(x)$. A Note on the, *Schaefer, Paul.* 34 (1961) 268.
Limit Points of the Sequence $\{\sin n\}$. On the, *Staib, John H. and Demos, Miltiades S.* 40 (1967) 210-213; *Comment* 42 (1969) 94.
Limit. Variations on Continuity: Sets of Infinite, *Bumcrot, R. and Sheingorn, M.* 47 (1974) 41-43.
Limits. A General Theory of, *Smith, H.L.* 12 (1938) 371-379.

Limits and Integrability. One-Sided, *Jones, W.R. and Landau, M.D.* 45 (1972) 19-21.
Limits of Functions. Remarks on, *Darst, R.B. and Deal, E.R.* 48 (1975) 101.
Limits. On Certain, *Brauer, Alfred.* 18 (1943) 64-66.
Limits]. The Practical Man and the Pure Mathematician: A Moral Essay [about, *Pursell, Lyle E.* 33 (1959) 33-34.
Limits Under the Integral Sign. Taking, *Cunningham, F., Jr.* 40 (1967) 179-186.
Line. An Easy Way From a Point to a, *Eisenman, R.L.* 42 (1969) 40-41.
Line Ax + By + C = 0. More About the Normal Equation of the, *Mills, C.N.* 34 (1960) 35.
Line-Coordinates. Complex Variables and, *Kittappa, R.* 41 (1968) 269-272.
Line Determined by Two Points. *Bailey, D. Moody.* 41 (1968) 183-187.
Line Distance. Point To, *Ransom, William R.* 33 (1960) 218.
Line Integrals in a Multiply Connected Region. *Brown, Arthur B.* 34 (1961) 230-232.
Line Involutions in [the Group] in S_3. A New Series of, *Wylie, C.R., Jr.* 23 (1950) 125-131.
Line Motion and Trisection. *Yates, Robert C.* 13 (1938) 63-66.
Line. Normal Form of the Straight, *Smith, P.K.* 2:3 (1928) 10-11.
Line. Note on Parametric Equations of the Straight, *Smith, H.L.* 3:3 (1928) 8-10.
Line of Flight From Shock Recordings. *Reid, Walter P.* 41 (1968) 59-63.
Line Segment. On the Minimum Track of a Moved, *Goldberg, Michael.* 47 (1974) 257-267.
Line Segment. The Minimum Path and the Minimum Motion of a Moved, *Goldberg, Michael.* 46 (1973) 31-34.
Line Segments Connected with a Triangle and Its Related Circles. A Note on, *Lewis, F.A.* 21 (1947) 42-43.
Line. The Distance of a Point From a, *Brown, T.A.* 37 (1964) 157-159.
Line. The Harmonic Division of a, *Nichols, Irby C.* 4:5 (1930) 15-21.
Line to Point. Distance from, *Moore, Douglas H.* 38 (1965) 219-221.
Line Treated by Translation and Rotation. The Straight, *May, Kenneth O.* 22 (1949) 211.
Linear Algebra. A Theorem in Applied, *Cvetkov, B.* 37 (1964) 148-152.
Linear Algebra by Means of the Minimal Polynomial. Solution of an Equation in a, *Kieffer, John C. and Stein, F. Max.* 42 (1969) 114-121.
Linear Dependence of Vectors in a Finite Dimensional Vector Space. A New Necessary and Sufficient Condition for, *Laidacker, Michael A.* 43 (1970) 157-158.
Linear Derivative Inequalities and Differential Equations. *Ettlinger, H.J.* 11 (1936) 126-130.
Linear Difference and Differential-Difference Equations. A Symbolic Method for Finding Integrals of, *Cooke, Kenneth L.* 31 (1958) 121-126.
Linear Difference Equations with Constant Coefficients. A Matric General Solution of, *Pfouts, Ralph W. and Ferguson, C.E.* 33 (1960) 119-127.
Linear Difference Equations with Constant Coefficients. Particular Solutions of, *Grimm, C.A.* 36 (1963) 54-59.
Linear Differential Equation. A Note on an n-th Order, *Klamkin, Murray S.* 32 (1958) 33-34.
Linear Differential Equation. A Representation Formula for the Solutions of the Second Order, *Pellicciaro, E.J.* 43 (1970) 77-80.
Linear Differential Equations as Entire Analytic Functionals of the Coefficient Functions. Solutions of Systems of, *Michal, Aristotle D.* 22 (1948) 57-66.
Linear Differential Equations by Differentiation. Polynomial Solutions of Certain, *Falbo, Clement Earl.* 35 (1962) 21-26.
Linear Differential Equations with Constant Coefficients. A Note on, *Kruse, Arthur H.* 34 (1961) 391-400, 409-410.
Linear Differential Equations with Constant Coefficients. Particular Solutions of Second Order, *Grimm, C.A.* 32 (1958) 25-30.
Linear Differential System. Construction of the Green's Function of a, *Miller, Kenneth S.* 26 (1952) 1-8.
Linear Diophantine Equation in Two Unknowns. The, *Thomas, Joseph Miller.* 24 (1950) 59-64.
Linear Diophantine Equations. *Brown, Arthur B.* 31 (1958) 215-220.
Linear Diophantine Equations. Jacobi's Solution of, *Waterman, M.S.* 48 (1975) 159-163.
Linear Equation. Concerning the Teaching of the, *Richert, D.H.* 11 (1937) 382-384.
Linear] Equations. A Note on Nonhomogeneous [, *Kuo, Y.* 42 (1969) 37-39.
Linear Equations. A Note on the Solution of Simultaneous, *James, Glenn.* 32 (1959) 207-209.
Linear Equations in a Certain Chemical Analysis. *Sanders, S.T.* 7:7 (1933) 23-25.
Linear Equations. The Coset of Solutions of a System of, *Morrill, John E.* 42 (1969) 248-249.
Linear Form Result in the Geometry of Numbers. A, *Mordell, L.J.* 45 (1972) 152-154.

Linear Functionals as Differentials of a Norm. *James, Robert C.* 24 (1951) 237-244.
Linear Functionals. Singular Measurable Sets and, *LaSalle, J.P.* 22 (1948) 67-72.
Linear Functions. Algebras Based on, *Weiner, L.M.* 28 (1954) 9-12.
Linear Homogeneous Differential Equations. On the Solution of, *Clough, Anne Reseigh and Dickinson, David.* 35 (1962) 235-239.
Linear. Necessary and Sufficient Conditions That Regression Systems of Sums with Elements in Common Be, *Wei, Dzung-Shu.* 17 (1943) 151-158.
Linear Programming Problems. Two-Dimensional Graphical Solution of Higher-Dimensional, *Cooke, W.P.* 46 (1973) 70-76.
Linear Second Order Differential Operators. Factorization of, *Heinbockel, J. H.* 37 (1964) 302-304.
Linear Transformations. Conformal, *Amir-Moéz, Ali R.* 40 (1967) 268-270.
Linear Transformations in the Plane. Some Groups of, *Lundberg, G.H.* 34 (1961) 375-385.
Linear Transformations in the Plane. The Dihedral Group of, *Lundberg, G.H.* 41 (1968) 206-210.
Linear Transformations in the Plane. The Icosahedral Group of, *Lundberg, G.H.* 38 (1965) 80-94.
Linearity. A Note on, *Burkill, H.* 43 (1970) 75-77.
Linearization Transformations for Least Squares Problems. *Dotson, W.G., Jr.* 39 (1966) 178-183.
Lines. Envelopes Associated with a One-Parameter Family of Straight, *Montague, Harriet F.* 13 (1938) 73-75.
Lines in the Euclidean Plane Meet in 2 Points Then They Meet in at Least n-1 Points. If n, *Pavlick, Frank.* 46 (1973) 221-223.
Lines in the Plane. Monochromatic, *Tingley, Daryl.* 48 (1975) 271-274.
Lines. Long-Short, *James, Glenn.* 29 (1956) 254-257; *Comments* 30 (1957) 209-214, 269-271; 31 (1958) 158.
Lines of a Triangle. On, *Parker, W. Vann.* 7:2 (1932) 12-13.
Lines. Polynomial Images of Circles and, *Cargo, Gerald T. and Schneider, W.J.* 40 (1967) 1-4.
Linkage on the Surface of a Sphere. The Peaucellier, *Goldberg, Michael.* 38 (1965) 308-311.
Linkages. Polyhedral, *Goldberg, Michael.* 16 (1942) 323-332.
Lipschitzianism. Local and Uniform, *Dotson, W.G., Jr.* 44 (1971) 103.
Liquor in Education. *Sturm, Isabel C.* 26 (1952) 44-45.
Literature and Aesthetics. The Influence of Newtonian Mathematics on, *Kline, Morris.* 28 (1954) 93-102.
Loans with a Partial Payment. *Stelson, H.E.* 37 (1964) 178-183.
Lobachevsky Planes. The Connection of Block Designs with Finite Bolyai-, *Spoar, G.* 46 (1973) 101-102.
Lobachevsky Planes. The Existence of Finite Bolyai-, *Heath, Steven H.* 43 (1970) 244-249.
Local and Uniform Lipschitzianism. *Dotson, W.G., Jr.* 44 (1971) 103.
Local Uniqueness Problem for Periodic Surface Waves of Permanent Type in a Channel of Infinite Depth. On the, *Hyers, D.H. and Ferling, J.A.* 31 (1957) 61-74.
Loci Connected with the Frégier Theorem. Harmonic Points and, *Spezia, Sister Clotilda.* 28 (1954) 13-19.
Loci in Analytic Geometry. A Use of Inequalities for, *Jennrich, Robert I. and Killgrove, Raymond B.* 35 (1962) 105-106.
Loci in Polar Co-ordinates. Sketching, *Andree, Richard V.* 24 (1951) 277.
Loci. Note on a Class of Curious, *Smith, H.L.* 3:5 (1929) 23-24.
Locks. A Combinatorial Problem Associated with a Family of Combination, *Simmons, G.J.* 37 (1964) 127-132.
Locus of the Gergonne Point. The Poristic, *Arany, Daniel.* 13 (1939) 367.
Locus Problem. An Interesting, *Byrne, William E.* 7:5 (1933) 6-9.
Locus Related to the Euler Line. A, *Crain, Karleton W.* 17 (1943) 163-164.
log in Elementary Calculus. On exp and, *Lightstone, A.H.* 36 (1963) 17-23.
Log Log Scales of the Slide Rule. The, *Eagle, Edwin L.* 25 (1951) 101-104.
Logarithm as the Limit of a Sequence. A Proof of the Formula Representing the, *Matlak, R.F.* 39 (1966) 64-65.
Logarithm] Inequality. On An Elementary [, *Kai-Meng, Chan.* 42 (1969) 240.
Logarithm] ln 2. A Geometric Proof of the Formula for [the, *Kost, Frank.* 44 (1971) 37-38.
Logarithmic and Binomial Expansions. A Note on the, *Nanjundiah, T.S.* 44 (1971) 23-24.
Logarithmic Derivative of Solutions of Second Order Differential Equations. Bounds on the, *Ronveaux, André.* 41 (1968) 231-234.
Logarithmic Function in the Complex Plane. Some Remarks on the, *Schoenfeld, Lowell.* 32 (1959) 189-202.
Logarithmic Function is Unique. The, *Milkman, Joseph.* 24 (1950) 11-14.
Logarithmic Function. On the Derivative of the, *Parker, F.D.* 36 (1963) 30.
Logarithmic Functions. Off the Beaten

Path with Some Differentiation Formulas for the Trigonometric Exponential and, *Eaves, James Clifton.* 26 (1953) 147-152.
Logarithmic Mean. Generalizations of the, *Stolarsky, Kenneth B.* 48 (1975) 87-92.
Logarithmic Properties of [an Integral of] a Power of x. *Sewell, W.E.* 15 (1940) 55-60.
Logarithmic Series and Its Developments in England up to Cotes. On the Discovery of the, *Hofmann, Josef Ehrenfried.* 14 (1939) 37-45.
Logarithmic Spiral Curve. Theory of the Keuffel and Esser, *Grunmann, H.R.* 10 (1936) 167-170.
Logarithmic Spirals. On a Property of, *Vinh, N.X. and Zirakzadeh, A.* 41 (1968) 26-28.
Logarithms. A Fraction Rule in, *Scherberg, M.G.* 11 (1937) 195.
logarithms. A Note on Co, *Selby, Sam.* 28 (1955) 196.
Logarithms. A Simple Method for Approximating, *Churchill, Edmund.* 22 (1949) 277-278.
Logarithms. Concerning the Base of the Natural System of, *Richert, D.H.* 10 (1936) 205-208.
Logarithms. Differentiation of, *Fulton, Curtis M.* 28 (1954) 8.
Logarithms. John Napier and His, *Sleight, E.R.* 18 (1944) 145-152.
Logarithms. On Finding the Characteristics of, *Mulcrone, T.F.* 29 (1956) 267.
Logarithms to the Base e Can Justly be Called Natural Logarithms. Why, *Evans, John Ellis.* 14 (1939) 91-95.
Logic. A Non-Truth-Functional 3-Valued, *Grant, John.* 47 (1974) 221-223.
Logic. Boolean Matrices and, *Parker, F.D.* 37 (1964) 33-38.
Logic from A to G. *Halmos, Paul R.* 50 (1977) 5-11.
Logic. Introducing Symbolic, *Dimmick, Edgar L.* 30 (1956) 18-24.
Logic. Science and, *Phipps, Cecil G.* 36 (1963) 289-294.
Logic. The Compactness Theorem in Mathematical, *Rubin, Jean E.* 46 (1973) 261-265.
Logical Paradoxes are Acceptable in Boolean Algebra. *van Heerden, P.J.* 39 (1966) 175-178.
Logics. Inconsistent and Incomplete, *Grant, John.* 48 (1975) 154-159.
Logs and Antilogs. A Better Elementary Method for Computing, *Soble, A.B.* 13 (1939) 231-232.
Long Jump Miracle of Mexico City [: A Calculus Analysis]. The, *Brearley, M. N.* 45 (1972) 241-246.
Long-Short Lines. *James, Glenn.* 29 (1956) 254-257; *Comments* 30 (1957) 209-214, 269-271; 31 (1958) 158.
Look, Ma, No Primes [$\sqrt{n}$ is Irrational]. *Fine, Nathan J.* 49 (1976) 249; *Comment* 50 (1977) 175.
Loop. Defining the Interchange of a, *Schwartz, Benjamin L.* 43 (1970) 141-143.
Lucky Number Theorem. The, *Hawkins, David and Briggs, W.E.* 31 (1957) 81-84; *Reprinted* 31 (1958) 277-280.

M

Maclaurin's Conic Construction. Some Remarks on, *Wylie, C.R., Jr.* 41 (1968) 234-242.
Magazine? Who Reads the Mathematics, *Cote, L.J. and O'Malley, R.P.* 45 (1972) 273-278.
Magic and Perimeter-Antimagic Cubes. Second Order Perimeter-, *Trigg, Charles W.* 47 (1974) 95-97.
Magic Pentagram." Comment on "A, *Cohen, Daniel I.A.* 37 (1964) 49-50.
Magic Pentagram for [the Number] 1962. A, *Trigg, Charles W.* 35 (1962) 228; *Comment* 37 (1964) 49-50.
Magic Square. Constructing a Third Order, *Trigg, Charles W.* 46 (1973) 99.
Magic Square of Order 2n From a Given Square of Order n. To Construct a, *Candy, A.L.* 8 (1934) 147-160; 9 (1935) 99-105.
Magic Square. The Third Order, *Scott, Robert H.* 36 (1963) 263.
Magic Squares. *Parker, W. Vann.* 8 (1934) 135-138.
Magic Squares. A Property of Third Order Gnomon-, *Trigg, Charles W.* 43 (1970) 70.
magic Squares. A Remarkable Group of Anti, *Trigg, Charles W.* 44 (1971) 13.
Magic Squares. Multiplicative, *Friedman, David.* 49 (1976) 249-250.
Magic Squares of Order 6t $\pm$ 1. On Pandiagonal, *Hudson, Carolyn Brauer.* 45 (1972) 94-96.
Magic Squares. Two Problems on, *Agnew, Elizabeth H.* 44 (1971) 13-15.
Magnetic Field. Electron Trajectories in a Combined Electric and, *Morris, Chester R.* 30 (1957) 251-267.
Magnilong Near-Laguerre Transformations. The, *De Cicco, John.* 19 (1945) 229-235.
Major Objectives in Geometry. *Rickey, F. A.* 5:5 (1931) 7-11.
Making Change. *Berlekamp, Elwyn R.* 49 (1976) 195-198.
Making Geometry Worth While. *Sanders, S. T.* 4:1 (1929) 12-20.
Malfatti Problem. On Goldberg's Inequality Associated with the, *Gabai, Hyman and Liban, Eric.* 41 (1968) 251-252.
Malfatti Problem. On the Original, *Goldberg, Michael.* 40 (1967) 241-247.

Malfatti Problem. The Converse, *Goldberg, Michael.* 41 (1968) 262-266.
Manuscript. Notes on a 17th-Century English Mathematical, *Richeson, A.W.* 11 (1937) 165-171.
Manuscript. Notes on an 18th-Century English Mathematical, *Richeson, A.W.* 11 (1937) 221-230.
Manuscripts in American Libraries. Unpublished Mathematical, *Richeson, A.W.* 13 (1939) 183-188.
Mapping Problem Associated with the Equilateral Triangle. A Ruler and Compass, *Hinrichsen, J.J.L.* 14 (1939) 141-143.
Mappings in Elementary Applications. Riemann Integrals as, *Pursell, Lyle E.* 37 (1964) 311-317.
Maps. Dimension Under Analytic, *Speck, G. P.* 42 (1969) 91-93.
Marked Ruler and the Carpenter's Square. The Angle Ruler, the, *Yates, Robert C.* 15 (1940) 61-73.
Market Place. Matrices in the, *Parker, F. D.* 38 (1965) 125-128.
Market Place. Policing the, *Pearl, Martin H. and Goldman, Alan J.* 50 (1977) 179-185.
Markoff Chains and Probability. A Self-Defining Infinite Sequence, with an Application to, *Nagel, Alexander.* 36 (1963) 179-183, 231-239.
Markov Process. Monopoly as a, *Ash, Robert B. and Bishop, Richard L.* 45 (1972) 26-29.
Math. Dig That, *Dellquest, Wilfrid.* 30 (1957) 206, 221.
Mathematical Abilities are Complex. *Forno, Dora M.* 5:3 (1930) 8-14.
Mathematical Analysis of the Parallel Parking Problem. *Allen, William A.* 34 (1960) 63-66.
Mathematical Careers in Military Research. *Odle, John W.* 25 (1952) 159-162.
Mathematical Experiences. Variety of, *Bowie, Harold E.* 23 (1949) 39-44.
Mathematical Heredity. *Becknell, G.G.* 34 (1960) 23-28.
Mathematical [Historical] Myths. *Miller, G.A.* 12 (1938) 388-392.
Mathematical Induction. A Remark on, *Klee, V.L., Jr.* 22 (1948) 52.
Mathematical Induction for Freshmen. *Morris, Richard.* 12 (1938) 183-187.
Mathematical Induction. Note on the Teaching of, *Carlson, C.S.* 19 (1944) 36.
Mathematical Induction. Two Forms of, *Schach, Arthur.* 32 (1958) 83-85.
Mathematical Munchausen [I. Neustadt... Satire]. A, *Schillo, Paul.* 30 (1956) 55-61; *Comments* 31 (1958) 159-161; 32 (1959) 271-274.
Mathematical Notation. A Note on, *Pogorzelski, H.A.* 33 (1959) 24.
Mathematical Papers Without Words [Trisecting an Angle, Pythagorean Theorem]. Two, *Isaacs, Rufus.* 48 (1975) 198; *Comment* 49 (1976) 50-51.
Mathematical Prodigies. *McCreery, Louis R.* 7:7 (1933) 4-12.
Mathematical Proof--What it Is and What it Should Be. A, *Melter, Robert Alan.* 34 (1961) 407-409.
Mathematical Recreation [: Bridge]. A, *Sanders, S.T., Jr.* 5:7 (1931) 27-30.
Mathematical Social Science--An Early Example. *Hutcheson, Francis.* 47 (1974) 234.
Mathematical Support for the Theory of the Conservation of Energy. A, *Neelley, J.H.* 19 (1945) 283-285.
Mathematical Theory of Switching Circuits. A, *Nemitz, William and Reeves, Roy F.* 33 (1959) 1-6.
Mathematical Theory of Think-A-Dot. *Schwartz, Benjamin L.* 40 (1967) 187-193; *Sequel* 46 (1973) 128-136.
Mathematical Thinking Aids in Intelligent Citizenship. *Kenny, Alice Patricia.* 27 (1953) 91.
Mathematician and the Carpenter [:Applied Arithmetic]. *Nichols, Irby C.* 4:2 (1929) 21-24.
Mathematician. Research and the, *Christilles, William Edward.* 36 (1963) 121-122.
Mathematician? Should Your Child be a, *New York Life Insurance Company.* 32 (1958) 103-104.
Mathematician. The Amateur. *Alfred, Brother U.* 34 (1961) 311-315.
Mathematicians. Rejected Papers of Three Famous, *Emch, Arnold.* 11 (1937) 186-189.
Mathematicians, Right or Left [in Education]. *Emmons, C.H.* 9 (1935) 166-173.
Mathematics. A Discussion of the Methods of Science, History, Art and, *Miller, Walter M.* 10 (1936) 200-204.
Mathematics. A Plea for, *Young, Violet S.* 6:1 (1931) 12-17.
Mathematics. A Simple Extension of the Aristotelian Definition of, *Kennedy, H.* 30 (1957) 207-208.
Mathematics an Exact Science? Is, *Read, Cecil B.* 17 (1943) 174-176.
Mathematics and Autobiography. *Glenn, Oliver E.* 28 (1955) 299-302.
Mathematics and Historiography. *Glenn, Oliver E.* 26 (1953) 205-208.
Mathematics and Mathematicians From Abel to Zermelo. *Hille, Einar.* 26 (1953) 127-146.
Mathematics and Music]. The Two Most Original Creations of the Human Spirit [, *Mode, Elmer B.* 35 (1962) 13-20.
Mathematics and Philately. *Brooke, Maxey.* 34 (1960) 31-32; *Comment* 34 (1960) 297.
Mathematics and Philately. A Note on, *Pinzka, C.F.* 34 (1961) 169.
Mathematics and Philosophy in the Last

Three Centuries. Interrelations Between, *Kennedy, E.S.* 16 (1942) 290-298.
Mathematics and Reality: A Classic View. *Glenn, Oliver E.* 30 (1957) 117-126.
Mathematics and Reality: A Modern View. *Miller, Hugh.* 30 (1957) 127-133.
Mathematics and the Engineering Curriculum. *Gunder, Dwight F.* 15 (1941) 419-422.
Mathematics and the Hypotheses of Science. *Ettlinger, H.J.* 11 (1936) 71-77.
Mathematics and the Social Sciences. *Frêchet, Maurice.* 21 (1948) 199-211.
Mathematics and the Space-Time Problem. *Osborn, Roger.* 25 (1952) 147-153.
Mathematics Applied. *Sleight, E.R.* 9 (1935) 219-223.
Mathematics as a Field of Specialization for College Students. *Zant, James H.* 19 (1945) 247-253.
Mathematics As a Personal Experience. *Boyd, Paul P.* 10 (1936) 157-164.
Mathematics as a Therapy. *Cowle, Irving M.* 21 (1948) 285-286.
Mathematics As An Experimental Science. *Ettlinger, H.J.* 10 (1935) 3-8.
Mathematics Club. A, *Smith, C.D.* 5:3 (1930) 5-6.
Mathematics [Education] as a Character Builder. *New, I.C.* 8 (1933) 3-8.
Mathematics [Education] at Exeter. *Barber, Harry C.* 4:7 (1930) 8-14.
Mathematics [Education]. More About Better, *Seidlin, Joseph.* 14 (1939) 96-99.
Mathematics for Service [: Store Arithmetic]. *Forno, Dora M.* 4:6 (1930) 13-15.
Mathematics. Goethe's Attitude Toward, *Locher, Louis.* 11 (1936) 131-145.
Mathematics Has Meant To Me. What, *Bell, E.T.* 24 (1951) 161.
Mathematics. Humanizing, *Archibald, R.C.* 7:2 (1932) 8-11.
Mathematics. Imaginative, *Court, Nathan Altshiller.* 37 (1964) 14-18.
Mathematics in a World at War--A Challenge to Mathematics Teacher. *Zant, James H.* 18 (1943) 77-80.
Mathematics In Japan and China. *Colpitts, Julia T.* 9 (1935) 123-129.
Mathematics in Scotland Before the Eighteenth Century. [Development of], *Sleight, E.R.* 18 (1944) 305-314.
Mathematics in the Engineering Curriculum. *Horton, Robert E.* 32 (1959) 137-149.
Mathematics in the Field of Economics. A History of the Development of, *Shaw, Ida Bell.* 8 (1933) 31-37; 8 (1934) 128-131.
Mathematics in the Liberal Arts College. *Wright, Harvey A.* 9 (1935) 95-99.
Mathematics in the Open Forum. *Sullivan, Sister Helen.* 18 (1944) 276-279.
Mathematics Means To Me. What, *Michal, Aristotle D.* 24 (1951) 223.
Mathematics Means to Me. What, *Robinson, Lewis Bayard.* 25 (1951) 115.
Mathematics Means To Me. What, *Thomas, T.Y.* 24 (1951) 275-276.
Mathematics Meeting of Hamilton, Colgate and Syracuse. The, *Aude, H.T.R.* 10 (1935) 100-101.
Mathematics of a Nut Cutter. The, *Reynolds, Joseph B.* 19 (1945) 159-162.
Mathematics of Simple Correlation. On the, *Smith, C.D.* 32 (1958) 57-69.
Mathematics of Stock Quotations. On the, *Smith, C.D.* 8 (1934) 179-184.
Mathematics of the Round-Robin. The, *Winthrop, Henry.* 39 (1966) 22-28.
Mathematics. On Exhibits in, *Renaud, Marie Louise.* 7:4 (1933) 9.
Mathematics. On Generalization and Correlation Through, *Webber, W. Paul.* 5:7 (1931) 33-36.
Mathematics. Some Values of the Study of, *Heggins, Lawrence E.* 6:1 (1931) 3-6.
Mathematics:] The Highest Rung. [, *Schaaf, William L.* 16 (1942) 392-397.
Mathematics. The Joy of, *McGiffert, James.* 8 (1933) 27-31.
Mathematics. The Nature of, *O'Toole, A.L.* 13 (1939) 323-328.
Mathematics. The New World Of, *Zant, James H.* 33 (1960) 211-217.
Mathematics. The Philosopher and, *Sanders, S.T.* 8 (1934) 121-124.
Mathematics. The Public Usefulness of, *Hedrick, E.R.* 7:4 (1933) 1-5.
Mathematics. The Transfer Value [in Education] of, *Shell, Lorraine.* 5:2 (1930) 10-13.
Mathematics. We Should Teach Our Students About, *McCreery, Louis R.* 34 (1961) 153-155.
Mathematics. What We Mean by, *Sakellariou, Nilos.* 25 (1951) 51-52.
Mathematics? Whither, *Keal, Harry M.* 20 (1945) 21-28.
Mathematics Work? Does, *Nichols, Irby C.* 14 (1940) 298.
Matric Equations. Roots of, *Feld, J.M.* 10 (1935) 96-98.
Matric General Solution of Linear Difference Equations with Constant Coefficients. A, *Pfouts, Ralph W. and Ferguson, C.E.* 33 (1960) 119-127.
Matrices. An Interesting Property of Square, *Kesavan, S.* 44 (1971) 99-101.
Matrices and Algebraic Equations. Circulant, *Chalkley, Roger.* 48 (1975) 73-80.
Matrices and Determinants. Systems of Equations, *Taussky, Olga and Todd, John.* 26 (1952) 9-20, 71-88.
Matrices and Logic. Boolean, *Parker, F.D.* 37 (1964) 33-38.
Matrices and Quadric Surfaces. *Olmsted, John M.H.* 19 (1945) 267-275.
Matrices and Switching Nets. Boolean, *Chen, Wai-Kai.* 39 (1966) 1-8.

Matrices and the Cayley-Hamilton Theorem. Triangular, *Barker, George Phillip.* 44 (1971) 34-36.
Matrices are Self-Inverse? Which Nonnegative, *Harary, Frank and Minc, Henryk.* 49 (1976) 91-92.
Matrices. Binary Relations as Boolean, *Feichtinger, Oskar and McAllister, Byron L.* 43 (1970) 8-14.
Matrices. Cofactorial, *Bucher, R. and Godbole, S.* 42 (1969) 142-145.
Matrices Derived from Finite Abelian Groups. *Chalkley, Roger.* 49 (1976) 121-129; *Comment* 49 (1976) 260-261.
Matrices. Diagonalizing Positive Definite, *Duemmel, James.* 39 (1966) 226-227.
Matrices for High School Students. Spectral Decomposition of, *Wilansky, Albert.* 41 (1968) 51-59.
Matrices for Study of Plane Sections of a Quadric. Use of, *Jones, Roger D.H.* 34 (1961) 337-339.
Matrices from Knight's Moves. 3 x 3, *Trigg, Charles W.* 36 (1963) 36.
Matrices. Groups of Singular, *Johnson, Colonel, Jr.* 49 (1976) 205-207.
Matrices in College Mathematics. The Use of, *Aude, H.T.R.* 11 (1936) 95-104.
Matrices In Teaching Conic Sections. Use Of, *Amir-Moéz, Ali R.* 33 (1960) 145-156.
Matrices in Teaching Trigonometry. *Amir-Moéz, Ali R.* 37 (1964) 78-81.
Matrices in the Market Place. *Parker, F. D.* 38 (1965) 125-128.
Matrices of a Fixed Rank. The Number of Square, *Verner, Lawrence.* 50 (1977) 95-96.
Matrices of Integers. Fermat's Equation of $A^p + B^p = C^p$ for, *Brenner, J.L. and De Pillis, J.* 45 (1972) 12-15.
Matrices. On a Theorem of G.P. Barker on Triangular, *Stojakovic, Mirko.* 44 (1971) 133-134.
Matrices. On Reconstruction of, *Manvel, Bennet and Stockmeyer, Paul K.* 44 (1971) 218-221.
Matrices. Pascal, *Moran, Daniel A.* 40 (1967) 12-14.
Matrices. Products of Triangular, *Lehigh University Research Group.* 44 (1971) 276.
Matrices, Relations, and Graphs. *Parker, F.D.* 34 (1960) 5-9.
Matrices. Similarity Classifications of Complex, *Lamont, John S., Maxfield, John E. and Selfridge, R.G.* 34 (1961) 147-152.
Matrices. Solutions of [the Fermat Equation] $A^k + B^k = C^k$ in Nonsingular Integral, *Gibson, P.M.* 43 (1970) 275-276.
Matrices. The Exponential Representation of Unitary, *Rinehart, R.F.* 37 (1964) 111-112.
Matrices. Two Methods of Inverting, *Lightstone, A.H.* 41 (1968) 1-7.
Matrices with Nilpotent Difference. Idempotent, *Hearon, John Z.* 41 (1968) 80-84.
Matricial Structure. Separable Functions and the Generalization of, *Rosenberg, Milton.* 42 (1969) 175-186.
Matrix. An Idempotent, *Stearn, J.L.* 35 (1962) 53-54.
Matrix Analysis. A Counterexample in, *Winter, B.B.* 47 (1974) 152-153.
Matrix and the Greatest Common Divisor. Another Theorem Relating Sylvester's, *Laidacker, Michael A.* 42 (1969) 126-128.
Matrix]. Concerning the Jordan Normal Form [of a, *Sinkhorn, Richard.* 41 (1968) 91-93.
Matrix Functions sin πA and cos πA. Note on the, *South, Jerry C., Jr.* 39 (1966) 287-288.
Matrix in Electrical Network Theory. The Appearance of Fibonacci Numbers and the Q, *Basin, S.L.* 36 (1963) 84-97.
Matrix Inversion. A Note on, *Geist, A. Polter* [sic]. 46 (1973) 226.
Matrix Inversion Procedure? A Simple, *Squire, William.* 37 (1964) 214.
Matrix Isomorphism. A Note on a Simple, *Robinson, Donald W.* 32 (1959) 213-215.
Matrix Manipulator. *National Bureau of Standards.* 32 (1959) 155-157.
Matrix of Continuous Functions. The Extension of a Rectangular, *Mathis, H. F.* 25 (1951) 3-6.
Matrix. On the Product of Diagonal Elements of a Positive, *Amir-Moéz, Ali R. and Johnston, G.E.* 42 (1969) 24-26.
Matrix. On the Rank of a, *Beesack, Paul R.* 35 (1962) 73-77.
Matrix. On the Rank of a, *Williams, V.C. and Cater, F.S.* 41 (1968) 249-250.
Matrix. Row Rank and Column Rank of a, *Andrea, Stephen A. and Wong, Edward T.* 34 (1960) 33-34.
Matrix. Test for the Rank of a, *Brand, Louis.* 33 (1960) 277-278.
Matrix Witticism. A, *Lehigh University Research Group.* 48 (1975) 199.
Maturity Value of a Note on Which Partial Payments Have Been Made. A Comparison of the United States Rule With the Merchant's Rule for Computing the, *Barnett, Joseph, Jr.* 23 (1949) 24-26.
Maximal Generalization of Fermat's Theorem. A, *Singmaster, David.* 39 (1966) 103-107.
Maximal Values. On Certain, *Hurst, T.T.* 6:2 (1931) 15-17.
Maximization] Problem. Extra Dividends From a Calculus [, *Ogilvy, C. Stanley.* 41 (1968) 280-281.
Maximizing the Smallest Triangle Made by N Points in a Square. *Goldberg, Michael.* 45 (1972) 135-144.

Maximum Area in a Corner. *Hoggatt, Verner E., Jr.* 26 (1952) 95-97.
Maximum Area of a Region Bounded by a Closed Polygon with Given Sides. *Demir, Huseyin.* 39 (1966) 228-231.
Maximum Area Under Constraint. *Lin, Tung-Po.* 50 (1977) 32-34.
Maximum Diameter of a Convex Polyhedron. The, *Jucovič, E. and Moon, J.W.* 38 (1965) 31-32.
Maximum Dips by Seismic Methods. *Funkenbusch, William W.* 19 (1945) 171-172.
Maximum Likelihood Estimators. Invariance Properties of, *Tan, Peter and Drossos, Constantin.* 48 (1975) 37-41.
Maximum-Minimum Problems. On Some, *Morley, R.K.* 28 (1955) 273-276.
Maximum of a Function on a Region. On the Absolute, *Smith, H.L.* 3:8 (1929) 13-15.
Maximum of [the Sum] $\sum a_i b_j$. The, *Wagstaff, Ronald and Tanner, Leslie R.* 37 (1964) 46-47.
Maximum Operation. On Explicit Solutions of Some Trinomial Equations in Terms of the, *Bellman, Richard.* 30 (1956) 41-44.
Mayas. The Number System of the, *Salyers, Gary D.* 28 (1954) 44-48.
Maze Puzzles. Solving, *Kravitz, Sidney.* 38 (1965) 213-217.
McGiffert. [Obituary:] Professor James, *Merrill, Lynn L.* 18 (1944) 142-144.
Mean-Approximation. An Elementary Proof of Jackson's Theorem on, *Cheney, E.W.* 38 (1965) 189-191.
Mean Difference. Some Notes on the, *Gill, John P.* 34 (1961) 223-225.
Mean Distance" in Kepler's Third Law. ", *Stein, Sherman K.* 50 (1977) 160-162.
Mean. Generalizations of the Logarithmic, *Stolarsky, Kenneth B.* 48 (1975) 87-92.
Mean of Integers. On Representing an Integer as the Harmonic, *Golomb, Solomon W.* 46 (1973) 241-244; *Comment* 47 (1974) 234.
Mean of r Independent Chance Variables When Each Is Subject to the Frequency Law $(\Gamma(p+q)/\Gamma(p)\Gamma(q))x^{p-1}(1-x)^{q-1}$. Concerning the Distribution of the, *Baten, William Dowell.* 13 (1939) 357-361.
Mean, Standard Deviation, and Coefficient of Correlation for a Composite Group in Terms of Similar Indices of Its Subgroups. Formulas Suitable for Machine Computation for the, *Mills, C.N.* 15 (1941) 395-398.
Mean. The Harmonic, *Kenney, J.F.* 13 (1939) 171-175.
Mean Value Property for Derivatives. A Note on Complex Polynomials Having Rolle's Property and the, *Dotson, W. G., Jr.* 41 (1968) 140-144.
Mean Value Theorem. A New Type of, *Trahan, Donald H.* 39 (1966) 264-268.
Mean Value Theorem. An Extended, *Goodner, Dwight B.* 36 (1963) 15-16.
Mean Value Theorem. An Extension of a, *Russell, A.M.* 42 (1969) 124-126.
Mean Value Theorem and a Conjecture of W.G. Dotson. On Analytic Functions Satisfying the, *Rubinstein, Zalman.* 42 (1969) 256-259.
Mean-Value Theorem in E_n. An Extension of the, *Lan, Chih-Chin.* 39 (1966) 91-93.
Mean Value Theorem. Some Geometric Considerations Related to the, *Osborn, Roger.* 33 (1960) 271-275.
Mean Value Theorems and Taylor Series. *Spiegel, Murray R.* 29 (1956) 263-266.
Meaning of Plane Geometry. The, *Mazziotta, Estelle.* 21 (1948) 273-284.
Means and Dispersions. Elementary Concepts of Functional, *Gill, John P.* 24 (1950) 65-75.
Means of Correlated Observations. Computational Savings in Routine Comparisons of the, *Baker, G.A.* 15 (1941) 399-400.
Means. The Iteration of, *Rosenberg, Lloyd.* 39 (1966) 58-62.
Measurable Sets and Linear Functionals. Singular, *LaSalle, J.P.* 22 (1948) 67-72.
Measures and Weights by Epiphanius. On, *Shaw, Allen A.* 11 (1936) 3-7.
Measuring Effectiveness in Teaching College Mathematics. A Method of, *Hassler, J.O.* 19 (1944) 73-77.
Mechanical Model which Approximates the Sum of an Annuity. A, *Osborn, Roger.* 32 (1958) 93-95.
Mechanical [Slide Rule] Device, "The X-Pone", for Pointing Off Decimals. A, *Weckesser, C.L.* 28 (1954) 87-92.
Mechanical] Systems. Stability of Periodic Time-Varying [, *Pipes, Louis A.* 30 (1956) 71-80.
Mechanically Described Curves. *Yates, Robert C.* 10 (1936) 134-138.
Mechanics. On a Certain Problem in, *Spiegel, Murray R.* 30 (1956) 94; *Comments* 30 (1957) 215-217, 268; 31 (1958) 158-159.
Mechanics. Satellite, *Hoggatt, Verner E., Jr.* 34 (1961) 249-257.
Mechanism [for Drawing Curves]. Garrett's, *Jones, W.C.* 12 (1937) 118-121.
Medial Triangle. Homologous Point in the, *Bailey, D. Moody.* 39 (1966) 236-239.
Median. A Note on the Distribution of the, *Paulson, Edward.* 14 (1940) 379-382.
Medians and Incenters. *Sholander, Marlow.* 36 (1963) 129-130.
Medians in a Testing Program in Mathematics. The Use of, *Reklis, Virginia Modesitt.* 16 (1942) 345-349.
Medians of a Triangle. Proof of the

Theorem on the Intersection of the, *Canady, E.F.* 21 (1948) 289.
Melancholy [Dürer] Octahedron. The, *Federico, P.J.* 45 (1972) 30-36; *Comment* 45 (1972) 280.
Menelaus and Ceva. The Affine Theorems of Pasch, *Abeles, Francine.* 45 (1972) 78-82.
Merchant's Rule for Computing the Maturity Value of a Note on Which Partial Payments Have Been Made. A Comparison of the United States Rule With the, *Barnett, Joseph, Jr.* 23 (1949) 24-26.
Mersenne Numbers. A Note on, *Ligh, Steve and Neal, Larry.* 47 (1974) 231-233.
Mersenne Primes and Group Theory. *Feigelstock, Shalom.* 49 (1976) 198-199.
Method for Finding the Real Roots of Cubic Equations by Using the Slide Rule. A, *Pennisi, Louis L.* 31 (1958) 211-214; *Comment* 32 (1958) 41-43.
Method for Finding the Solution of a Non-Homogeneous Differential Equation with Constant Coefficients. A, *Hoomani, A. A. and Byrd, J.W.* 38 (1965) 283-286.
Method for Solving [the Integrals] $\int \sin^2 nx\, dx$ and $\int \cos^2 nx\, dx$. A, *Pennisi, Louis L.* 29 (1956) 271-272.
Method for Solving the Torsion Problem. Remarks on a, *Higgins, Thomas James.* 17 (1942) 3-7.
Method for the Point by Point Construction of Central Conics by Ruler and Compass. A, *Harper, Floyd S.* 21 (1947) 55-57.
Method of Establishing Certain Irrationalities. A, *Maier, E.A. and Niven, Ivan.* 37 (1964) 208-210.
Method of Measuring Effectiveness in Teaching College Mathematics. A, *Hassler, J.O.* 19 (1944) 73-77.
Method of "Moment Areas." Note on the, *Grummann, H.R.* 13 (1938) 30-33.
Method of Successive Substitutions. The, *Smith, H.L.* 5:5 (1931) 20-24.
Method of Trisection of an Angle and X-Section of an Angle. A, *Sheng, Hung Tao.* 42 (1969) 73-80.
Methods of Mathematical Proof for Undergraduates. *Stark, Marion E.* 16 (1942) 350-351.
Methods of Solution of the Riccati Differential Equation. *Haaheim, D. Robert and Stein, F. Max.* 42 (1969) 233-240.
Metric. A Multiplicative, *Schattschneider, Doris J.* 49 (1976) 203-205; *Comment* 50 (1977) 55-56.
Metric Differential Geometry. *Beckenbach, Edwin F.* 23 (1950) 143-152.
Metric. Ptolemy's Inequality and the Chordal, *Apostol, Tom M.* 40 (1967) 233-235.
Metric Representations of Groups. On, *Ellis, David.* 26 (1953) 183-184.
Metric Space. An Interesting, *Hildebrand, S.K. and Milnes, Harold Willis.* 41 (1968) 244-247.
Metric Space. Completion of a, *Sell, George R.* 44 (1971) 182-184.
Metric Space. On An Interesting, *Shantaram, R.* 43 (1970) 95-97.
Metric Spaces. On a Fixed Point Theorem for Compact, *Bennett, D.G. and Fisher, B.* 47 (1974) 40-41; *Comment* 48 (1975) 48.
Metrics in N Variables. Proportional, *Pyle, H. Randolph.* 32 (1959) 261-263.
Metrization Theorem. A Short Proof of the Urysohn, *Meyer, Paul R.* 43 (1970) 268-269.
Mexico City [: A Calculus Analysis]. The Long Jump Miracle of, *Brearley, M.N.* 45 (1972) 241-246.
Michal, 1899-1953. [Obituary:] Aristotle D., *Hyers, D.H.* 27 (1954) 237-244.
Midpoint Method of Numerical Integration. The, *Hammer, Preston C.* 31 (1958) 193-195.
Mil as an Angular Unit and Its Importance to the Army. The, *Burington, Richard S.* 15 (1941) 400, 402.
Military Research. Mathematical Careers in, *Odle, John W.* 25 (1952) 159-162.
Miller as Mathematician and Man: Some Salient Facts. [Biography:] G.A., *Dunnington, G. Waldo.* 12 (1938) 384-387.
Mini-Profiles [Humor]. *O'Brien, Katharine.* 48 (1975) 199.
Minimal Covers for Closed Curves. *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 55-61.
Minimal Polynomial. Solution of an Equation in a Linear Algebra by Means of the, *Kieffer, John C. and Stein, F. Max.* 42 (1969) 114-121.
Minimal Rectangular Region Which Has the Lattice Point Covering Property. On the, *Maier, E.A.* 42 (1969) 84-85.
Minimum of a Real, Indefinite, Binary Quadratic Form. The, *Pall, Gordon.* 21 (1948) 255.
Minimum Path and the Minimum Motion of a Moved Line Segment. The, *Goldberg, Michael.* 46 (1973) 31-34.
Minimum Property of the Symmedian Point. *Butchart, J.H.* 22 (1949) 165-166.
Minimum Track of a Moved Line Segment. On the, *Goldberg, Michael.* 47 (1974) 257-267.
Minimum Triangles Inscribed in a Convex Curve. *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 256-260.
Minimum Values. A Problem in, *Rickey, F. A.* 13 (1939) 362-366.
Minkowski Inequalities from Young's Inequality. An Elementary Derivation of the Cauchy, Hölder, and, *Tolsted, Elmer.* 37 (1964) 2-12.
Minkowski's Theorem. On, *Scott, P.R.* 47 (1974) 277.

Minutiae in Teaching Procedure. *Anonymous.* 10 (1936) 175-177.
Miss A's Method of Finding Area of a Floor. *Coultrap, M.W.* 6:5 (1932) 6-8.
Mitchell, 1872-1942. [Obituary:] U.G., *Dunnington, G. Waldo.* 16 (1942) 240-242.
Mixtures. On the Algebra of, *Smith, C.D.* 9 (1935) 138-141.
Möbius Functions. The Definitions of the Euler and, *Cohen, Eckford.* 38 (1965) 14-17.
Möbius Inversion. Abstract, *Spira, Robert.* 45 (1972) 220-223.
Mode. On Graphical Approximations to the, *Larsen, Harold D.* 21 (1947) 35-39.
Model of the World Series. A Binomial Identity Derived from a Mathematical, *Strait, Peggy Tang.* 48 (1975) 227-228.
Modern Mathematical Approach to LR^2H [Satire]. The, *Rinehart, R.F.* 32 (1959) 151-152.
Modern Mathematical Concepts Shed Light on Elementary Mathematics. How, *Andree, Richard V.* 28 (1955) 173-176.
Modes of Studying Geometry. *Forno, Dora M.* 4:1 (1929) 7-9; 4:3 (1929) 5-11.
Modular Palindromes. *Hansen, Rodney T.* 44 (1971) 208-212.
Modulation Products in Power-Law Devices. *Kaufman, H.* 30 (1956) 9-17.
Modules. Note on, *Peinado, Rolando E.* 37 (1964) 266-267.
Moment-Area Theorem. A Proof of the, *Hoyt, J.P.* 30 (1956) 95-97.
Moment-Areas." Note on the Method of ", *Grummann, H.R.* 13 (1938) 30-33.
Moment of Inertia. Geometric Inequalities via the Polar, *Klamkin, Murray S.* 48 (1975) 44-46.
Moment of Inertia of a Plane Lamina. Two Graphical Treatments of the, *Holl, D. L.* 9 (1934) 18-21.
Moment of Inertia. On, *Webber, W. Paul.* 6:5 (1932) 29-31.
Moment of Some Geometrical Solids. A Formula for the Calculation of the Inertia, *Kefalas, Christos N.* 26 (1953) 265-269.
Moment Problem. On a, *Nashed, M.Z.* 44 (1971) 268-269.
Moments of Inertia Simultaneously. Teaching Centroids and, *Kaltenborn, H.S.* 16 (1942) 299-304.
Monochromatic Lines in the Plane. *Tingley, Daryl.* 48 (1975) 271-274.
Monopoly as a Markov Process. *Ash, Robert B. and Bishop, Richard L.* 45 (1972) 26-29.
Monotone Functions. Covariance of, *Behboodian, Javad.* 45 (1972) 158.
Montmort. The Permanent Function and the Problem of, *Johnson, James J.* 46 (1973) 80-83.
More About Better Mathematics [Education]. *Seidlin, Joseph.* 14 (1939) 96-99.
More About the Normal Equation of the Line Ax + By + C = 0. *Mills, C.N.* 34 (1960) 35.
More on Finite Subsets and Simple Closed Polygonal Paths. *Gemignani, Michael C.* 39 (1966) 158-160.
More on Palindromes by Reversal-Addition. *Trigg, Charles W.* 45 (1972) 184-186.
More on Vector Representation of Rigid Body Rotation. *Hickey, Harry W.* 43 (1970) 38-39.
More Progress to Madness via "Eight Blocks." *Sobczyk, Andrew.* 47 (1974) 115-124.
Morley. Constellation, *Sastry, K.R.S.* 47 (1974) 15-22.
Morley. The Theorem of, *Peters, J.W.* 16 (1941) 119-126.
Morley Theorem. A Simple Proof of the, *Bankoff, Leon.* 35 (1962) 223-224.
Morley's Theorem. A Theorem Analogous to, *Demir, Huseyin.* 38 (1965) 228-230.
Morley's Theorem. An Extension of, *Spickerman, W.R.* 44 (1971) 191-192.
Morley's Triangle. *Burns, J.C.* 43 (1970) 210-211.
Morley's Triangle. *Neidhardt, G.L. and Milenkovic, V.* 42 (1969) 87-88.
Morley's Triangle Theorem. *Webster, R.J.* 43 (1970) 209-210.
Most "Elementary" Theorem of Euclidean Geometry. The, *Pedoe, Dan.* 49 (1976) 40-42; *Comment* 49 (1976) 261.
Most Important Objective in the Teaching of Mathematics. The, *Gisonti, Frank.* 27 (1953) 37-38.
Most Powerful Thing in the World [--Zero]. The, *Neureiter, Paul R.* 19 (1945) 244-246.
Motion and Trisection. Line, *Yates, Robert C.* 13 (1938) 63-66.
Motion.' Comments on and additions to H. V. Craig's paper 'On Extensors and the Lagrangian Equations of, *Horton, C.W.* 23 (1949) 31-32.
Motion of a Moved Line Segment. The Minimum Path and the Minimum, *Goldberg, Michael.* 46 (1973) 31-34.
Motion of a Rigid Body. On the, *Poor, Vincent C.* 19 (1945) 391-394.
Motion of Electrons. Cycloidal, *Rauch, S. E.* 26 (1953) 255-262.
Motion. On Extensors and the Lagrangian Equations of, *Craig, Homer V.* 22 (1949) 245-251.
Motions. A Note on Representations of Abstract Groups as Groups of, *Melter, Robert Alan.* 37 (1964) 330-331.
Motions by Unit Distance Invariance. Characterizing, *Bishop, Richard L.* 46 (1973) 148-151.
Motivating the Study of Determinants. *Shepherd, W.L.* 28 (1955) 280-281.
Motivation in Algebra. *Vautrain, Jeanne.* 6:2 (1931) 4-5.

Moved Line Segment. On the Minimum Track of a, *Goldberg, Michael.* 47 (1974) 257-267.
Multilinear Functions. Derivatives of Determinants and Other, *May, Kenneth O.* 38 (1965) 307-308.
Multilinear Vectors. Inner Products of, *Pyle, H. Randolph.* 37 (1964) 93-100.
Multilinear Vectors. Non-Square Determinants and, *Pyle, H. Randolph.* 35 (1962) 65-69.
Multinomial Coefficients. *Abramson, Morton.* 41 (1968) 199-205.
Multiple Integration. *Buck, R.C.* 20 (1945) 33.
Multiple Interpretations of Some Integrals. *Hoggatt, Verner E., Jr.* 34 (1961) 207-210.
Multiple Numbers. *Tierney, John A. and Tyler, John.* 31 (1957) 27-29.
Multiple Subdivisions of the Plane. *Marley, Gerald C.* 47 (1974) 202-206.
Multiplication Formulas for the Bernoulli and Euler Polynomials. The, *Carlitz, Leonard.* 27 (1953) 59-64.
Multiplications in R^2. Continuous, *Heuer, G.A.* 45 (1972) 72-77; *Comment* 46 (1973) 160.
Multiplicative Functions. Pseudo-, *Goldberg, Richard R.* 30 (1957) 145-148.
Multiplicative] Functions. SAM [Subadditive, *Hall, Wayne and Hight, Donald W.* 41 (1968) 63-66.
Multiplicative Magic Squares. *Friedman, David.* 49 (1976) 249-250.
Multiplicative Metric. A, *Schattschneider, Doris J.* 49 (1976) 203-205; *Comment* 50 (1977) 55-56.
Multiplicative Theory of Numbers. Solution of a Functional Equation in the, *Bell, E.T.* 24 (1951) 233-235.
Multiply Connected Region. Line Integrals in a, *Brown, Arthur B.* 34 (1961) 230-232.
Multum in Parvo [: Large Numbers]. *Wilder, Geo. F.* 4:2 (1929) 12-14.
Munchausen [I. Neustadt...Satire]. A Mathematical, *Schillo, Paul.* 30 (1956) 55-61; *Comments* 31 (1958) 159-161; 32 (1959) 271-274.
Murphy, II [on Primes]. On a Conjecture of, *Makowski, Andrzej.* 35 (1962) 281.
Music]. The Two Most Original Creations of the Human Spirit [Mathematics and, *Mode, Elmer B.* 35 (1962) 13-20.

N

n and n + 1 Consecutive Integers with Equal Sums of Squares. *Alfred, Brother U.* 35 (1962) 155-164.
N + 2 Mutually Orthogonal Hyperspheres. On, *Ayres, Frank, Jr.* 10 (1936) 249-257.
N^2 + 21N + 1 as a Generator of Primes. [The Polynomial], *Hunter, J.A.H.* 38 (1965) 232.
N Dimensions. The Number of Segments Needed to Extend a Cube to, *Hess, Adrien L. and Diekhans, Carl.* 43 (1970) 189-192.
N! [Factorial]. A Note on, *Maxfield, John E.* 43 (1970) 64-67.
n-Groups with Identity Elements. *Robinson, Donald W.* 31 (1958) 255-258.
N Producers in Cooperation and Competition. *Aucoin, A.A.* 11 (1937) 354-360.
N-Sequences. On, *Brown, T.C. and Weiss, Max L.* 44 (1971) 89-92.
n! Note on a Function Similar to [the Factorial], *de Koninck, Jean-Marie.* 47 (1974) 226.
n-th Derivative of a Determinant of the j-th Order. On the, *Christiano, John G.* 37 (1964) 215-217.
n-th Order Linear Differential Equation. A Note on an, *Klamkin, Murray S.* 32 (1958) 33-34.
nth Root Groups. *Kennedy, Robert E. and Busby, Robert W.* 49 (1976) 140-141.
Nth Term of the Fibonacci Sequence. A Note on the, *Just, Erwin.* 44 (1971) 199.
Napier and His Logarithms. John, *Sleight, E.R.* 18 (1944) 145-152.
Natural Boundaries of a Generalized Lambert Series. On, *Regan, Francis and Rust, Charles.* 31 (1957) 45-50.
Nature of Mathematics. The, *O'Toole, A.L.* 13 (1939) 323-328.
Nature of [the Number] N = n(n+1)-1. The, *Trigg, Charles W.* 36 (1963) 120.
Nature of the Roots of a Quartic Equation. On the, *Garver, Raymond.* 7:4 (1933) 6-8.
Necessary and Sufficient Conditions That Regression Systems of Sums with Elements in Common Be Linear. *Wei, Dzung-Shu.* 17 (1943) 151-158.
Need for Studies in Mathematical Education. *Schaaf, William L.* 18 (1943) 27-31.
Needs of College Freshmen in Mathematics. The, *Shirley, Ernest.* 4:3 (1929) 11-14.
Neemies. [Number-], *Kugel, Peter.* 36 (1963) 13-15.
Neighborhoods. Sequences vs., *Staib, John H.* 44 (1971) 145-146.
Nested Series, Computation of Square Roots and Solution of Third Degree Equations. *Sarafyan, Diran.* 27 (1953) 19-36.
Nets of Rationality. A Note on the, *Czarnecki, Adam Z.* 41 (1968) 242-244.
Network Joining n Points. The Problem of the Shortest, *DeMar, Richard F.* 41 (1968) 225-231.
Network Theory. The Appearance of

Fibonacci Numbers and the Q Matrix in Electrical, *Basin, S.L.* 36 (1963) 84-97.
Neugebauer, Biographical Sketch--Otto, *Dunnington, G. Waldo.* 11 (1936) 14-15.
Neural Nets. Algebra of, *Studley, Duane.* 22 (1949) 125-128.
Neustadt...Satire]. A Mathematical Munchausen [I., *Schillo, Paul.* 30 (1956) 55-61; *Comments* 31 (1958) 159-161; 32 (1959) 271-274.
Neustadt's Law [Satire]. A Correction and Generalization of, *Funkenbusch, William W.* 31 (1958) 159-161.
Neustadt's Law [Satire]. A Further Generalization of, *Bergman, George M.* 32 (1959) 271-274.
New Approach to an Old Problem [on the Derivative of sin x]. A, *Lindstrom, Peter A.* 42 (1969) 88-90.
New Approach to Circular Functions, II, and lim (sin x)/x. A, *Robison, Gerson B.* 41 (1968) 66-70.
New Approach to Integration for Functions of a Complex Variable. A, *Trahan, Donald H.* 38 (1965) 132-140.
New Criteria for Accuracy in Approximating Real Roots by the Newton-Raphson Method. *Pawley, Myron G.* 15 (1940) 111-120.
New Experimental Results on the Goldbach Conjecture. *Stein, M.L. and Stein, P. R.* 38 (1965) 72-80.
New General Method of Summing Divergent Series. A, *James, Glenn.* 22 (1949) 235-244.
New Intrinsic Properties of Cubics and Quartics. Some, *Franks, J. Russell.* 22 (1948) 73-76.
New Least-Squares Line. A, *Baker, G.A.* 22 (1949) 199-200.
New Look at an Old [Diophantine] Problem. A, *Wingo, Charles E., Jr.* 32 (1959) 275-276, 288; *Comment* 33 (1960) 221-224.
New Look at [Euler's Formula] $e^{i\phi} = \cos \phi + i \sin \phi$. A, *Albaugh, Henry.* 34 (1961) 285-288.
New Look at the Fifteen Puzzle. A, *Spitznagel, Edward L., Jr.* 40 (1967) 171-174.
New Meanings for Old Symbols. *Diamond, Louis E.* 29 (1956) 209-216.
New Models for the Solution of Quadratic and Cubic Equations. *Emch, Arnold.* 9 (1935) 162-164.
New Necessary and Sufficient Condition for Linear Dependence of Vectors in a Finite Dimensional Vector Space. A, *Laidacker, Michael A.* 43 (1970) 157-158.
New [Numerical] Roles for Old Figures. *Kovach, Ladis D.* 35 (1962) 294-297; *Sequel* 36 (1963) 257.
New Probability Model for Bertrand's Paradox. A, *Funkenbusch, William W.* 35 (1962) 144.
New Proof of a Combinatorial Identity. A, *Shipman, David C.* 43 (1970) 162-163.
New Proof of Routh's Theorem. A, *Niven, Ivan.* 49 (1976) 25-27.
New Proofs of Some Theorems of Hardy by Banach Space Methods. *Taylor, Angus E.* 23 (1950) 115-124.
New Properties of the Triangle. Some, *Lu, C.S.* 19 (1945) 398-405.
New Property of the Bernoulli Numbers. A, *Valdez, Juan.* 47 (1974) 144-145.
New Series of Line Involutions in [the Group] S_3. A, *Wylie, C.R., Jr.* 23 (1950) 125-131.
New Twist to an Old Problem [on Irrationality]. A, *Weyers, Donald V.* 38 (1965) 106.
New Type of Mean Value Theorem. A, *Trahan, Donald H.* 39 (1966) 264-268.
New World Of Mathematics. The, *Zant, James H.* 33 (1960) 211-217.
Newton Quotients]. An Application of Certain Partial Derived Functions [, *Rickey, F.A.* 4:8 (1930) 9-12.
Newton-Raphson Method. New Criteria for Accuracy in Approximating Real Roots by the, *Pawley, Myron G.* 15 (1940) 111-120.
Newtonian Analogues of the Trigonometric and Exponential Functions. *Fort, Tomlinson.* 40 (1967) 5-12.
Newtonian Difference Quotients and Their Applications--An Abstract. On a Representation of the, *Tchakaloff, L.* 11 (1937) 183-184.
Newtonian Mathematics on Literature and Aesthetics. The Influence of, *Kline, Morris.* 28 (1954) 93-102.
Newton's Method. Geometrical Aspects of, *Jennings, Walter.* 42 (1969) 262-266.
Newton's Method. Note on, *Weiner, L.M.* 39 (1966) 143-145.
Newton's Theorem. Various Proofs of, *Tan, Kaidy.* 39 (1966) 45-58.
Next Steps in Education and in the Teaching of Mathematics. *Betz, William.* 18 (1944) 153-176.
Nilpotent Difference. Idempotent Matrices with, *Hearon, John Z.* 41 (1968) 80-84.
Nim--A Heuristic Approach. The Game of, *Baron, Julius G.* 47 (1974) 23-28.
NIM. Some Extensions of, *Schwartz, Benjamin L.* 44 (1971) 252-257.
Nine Point Conic Associated with a Complete Quadrangle. On the, *Regan, Francis and Wilke, R.L.* 44 (1971) 261-266.
Nineteen Hundred and Sixty-Two. [The Number], *Gould, H.W.* 35 (1962) 36.
19th Century. French Geometers of the, *Thébault, Victor T.* 32 (1958) 79-82.
Ninth Lesson in the History of Mathematics. A, *Miller, G.A.* 19 (1944) 64-72.

Niven [on Gaussian Integers]. Another Proof of a Theorem of, *Williams, Kenneth S.* 46 (1973) 39.
Nomograph] Charts. On the Accuracy of Z [-shaped, *Sutcliffe, Alan.* 36 (1963) 106-108.
Nomographic Solution of the Quintic. *Pettit, John T.* 21 (1948) 266.
Nonassociative Binary Operations. A Remark on, *Anderson, Philip H.* 44 (1971) 162-163.
Non-Associative Structures. *Cardoso, Jayme Machado and Carneiro, David A. S., Jr.* 36 (1963) 126-127.
Non-Desarguesian Plane. A Simple Construction of a, *Saxena, Subhash C.* 46 (1973) 225.
Non-Euclidean Domains: An Example. *Singh, Sahib.* 49 (1976) 243.
Non-Euclidean Geometry. *Busemann, Herbert.* 24 (1950) 19-34.
Non-Euclidean Geometry. Catenary and Tractrix in, *Fulton, Curtis M.* 27 (1953) 79-84.
Non-Euclidean Geometry. The Founding of, *Daus, P.H.* 7:7 (1933) 12-16.
Non-Euclidean Principal Ideal Domains. Note on, *Williams, Kenneth S.* 48 (1975) 176-177.
Non-Euclidean Projectile. The, *Fulton, Curtis M.* 25 (1952) 143-146.
Non-Euclidean Trigonometry. An Approach to, *Fulton, Curtis M.* 22 (1949) 255-262.
Nonhomogeneous [Linear] Equations. A Note on, *Kuo, Y.* 42 (1969) 37-39.
Nonlinear Differential Equations Satisfied by the Jacobian Elliptic Functions. Some, *Soudack, A.C.* 37 (1964) 138-147.
Nonlinear Differential Equations. The Definition of Functions from Certain, *Carter, Paula Winn and Stein, F. Max.* 38 (1965) 96-101.
Nonlinear Recurrence Related to $\sqrt{2}$. Note on a, *Graham, R.L. and Pollak, H.O.* 43 (1970) 143-145.
Nonnegative Integers. On Complementing Sets of, *Vaidya, A.M.* 39 (1966) 43-44; *Comment* 39 (1966) 300-301.
Nonparametric Model for Series [Sports] Competitions. A, *Vargo, Louis G.* 50 (1977) 25-27.
Non-Rotational Operator of Third Order Periodicity. A, *Soble, A.B.* 14 (1940) 443-444.
Non-Square Determinants and Multilinear Vectors. *Pyle, H. Randolph.* 35 (1962) 65-69.
Non-Transitive Dominance. *Tenney, Richard L. and Foster, Caxton C.* 49 (1976) 115-120.
Non-Truth-Functional 3-Valued Logic, A, *Grant, John.* 47 (1974) 221-223.
Norm. Linear Functionals as Differentials of a, *James, Robert C.* 24 (1951) 237-244.
Norm One may not Exist. A Projection of, *Goodner, Dwight B.* 37 (1964) 334-335.
Norm Preserving Operators on Decomposable Tensors. *Bronson, Richard.* 46 (1973) 100.
Normal Curve Areas and Geometric Transformations. *Gans, David.* 31 (1958) 205-206.
Normal Curves. On the Polar Projection with Respect to, *Inagaki, Masaru.* 31 (1958) 141-153.
Normal Equation of the Line Ax + By + C = 0. More About the, *Mills, C.N.* 34 (1960) 35.
Normal Form of the Straight Line. *Smith, P.K.* 2:3 (1928) 10-11.
Normal Line Convergence. Curvature by, *Seiner, Jerome A.* 39 (1966) 147-148.
Normal Populations. F-Values for Samples of Four and Four Drawn from Populations Which are the Sum of Two, *Baker, G.A.* 19 (1944) 62-63.
Normalizers in Hausdorff Groups. Centralizers and, *Grant, Douglass L.* 48 (1975) 218; *Comment* 49 (1976) 259.
Normalizing Vogel's Approximation Method. *Larson, Roland E.* 45 (1972) 266-269.
Normals to the Parabola. *McGiffert, James.* 7:6 (1933) 12-17.
Normed Linear Spaces. On Bounds of Polynomials in Hyperspheres and Fréchet-Michal Derivatives in Real and Complex, *Michal, Aristotle D.* 27 (1954) 119-126.
Norms of Orthogonal Vectors. On the Product of, *Hyde, Beverly M.* 40 (1967) 141-143.
Norrie's Identity. On, *Williams, Kenneth S.* 37 (1964) 322.
Notable Points Associated with a Triangle. *Peters, J.W.* 13 (1938) 122-126.
Notation. A Note on Mathematical, *Pogorzelski, H.A.* 33 (1959) 24.
Notation and Terminology. Society for the Improvement of Mathematical, *Hyers, D.H.* 32 (1959) 203-206.
Notations and Their Influence on Mathematics. Numerical, *Lehmer, D.H.* 7:6 (1933) 8-12.
Notes [on $\sin(\alpha+\beta)$ and the Incenter Inequality]. *Lin, Tien-Hsung.* 38 (1965) 158-159; *Comment* 40 (1967) 28.
Notion of Area of Surface. The, *Smith, H.L.* 5:7 (1931) 36-43.
Notion of "Consequence" in the Predicate Calculus. The, *Lightstone, A.H.* 42 (1969) 57-60.
Notions of Velocity and of Acceleration. On the, *Smith, H.L.* 4:4 (1929) 16-19.
No-Touch Puzzle and Some Generalizations. The, *Cohoon, D.K.* 45 (1972) 261-265.
Novel Algorithm at the Freshman Level. A, *Huff, Gerald B.* 21 (1948) 138-144.
Null Class. A Consideration of the, *Osborn, Roger.* 25 (1953) 175-182.
Null System in Space. Skew Curves Setting Up a, *Eves, Howard.* 19 (1944) 55-61.

Numbers: *see also* Algebraic, Amicable, Bernoulli, Complex, Fibonacci, Irrational, Mersenne, Perfect, Prime, Real, Stirling.
Number Bases and Binomial Coefficients. *Howell, John M. and Horton, Robert E.* 35 (1962) 177-179.
Number] N = n(n+1)-1. The Nature of [the, *Trigg, Charles W.* 36 (1963) 120.
Number-] Neemies. [, *Kugel, Peter.* 36 (1963) 13-15.
Number] 1955. Farewell to [the, *Gandhi, J.M.* 29 (1956) 198-199.
Number] 1961. Curiosa from [the, *Trigg, Charles W.* 34 (1961) 321.
Number] 1961. Determinants for [the, *Trigg, Charles W.* 34 (1961) 194.
Number] 1961. Getting Squared Away in [the, *Trigg, Charles W.* 34 (1961) 168.
Number] 1961. Permutations from [the, *Trigg, Charles W.* 34 (1961) 406.
Number] 1961. Prime Portions of [the, *Trigg, Charles W.* 34 (1961) 274.
Number] 1962. A Magic Pentagram for [the, *Trigg, Charles W.* 35 (1962) 228; *Comment* 37 (1964) 49-50.
Number] Nineteen Hundred and Sixty-Two. [The, *Gould, H.W.* 35 (1962) 36.
Number of Prime Factors of a Pair of Relatively Prime Amicable Numbers. On the, *Hagis, Peter, Jr.* 48 (1975) 263-266.
Number of Regions Determined by a Convex Polygon. The, *Freeman, J.W.* 49 (1976) 23-25.
Number of Segments Needed to Extend a Cube to N Dimensions. The, *Hess, Adrien L. and Diekhans, Carl.* 43 (1970) 189-192.
Number of Solutions of the Congruence $x^m = r \pmod n$. *Alonso, James.* 46 (1973) 215-217.
Number of Square Matrices of a Fixed Rank. The, *Verner, Lawrence.* 50 (1977) 95-96.
Number of Subgroups of Index Two--An Application of Goursat's Theorem for Groups. On the, *Crawford, R.R. and Wallace, K.D.* 48 (1975) 172-174.
Number of Subsets of a Finite Set. On the, *Greenstein, David S.* 43 (1970) 36.
Number of 12 x 12 Squares That Can Be Constructed by the Method of Current Groups. The, *Candy, A.L.* 9 (1935) 223-235.
Number Pairs. A Division Algorithm with, *Draim, N.A.* 28 (1955) 221-228.
Number] Surprises. Four Mathematical [, *Anning, Norman.* 36 (1963) 80.
Number System in More General Scales [Bases]. The, *Alder, Henry L.* 35 (1962) 145-151.
Number System of the Mayas. The, *Salyers, Gary D.* 28 (1954) 44-48.
Number System with an Irrational Base. A, *Bergman, George M.* 31 (1957) 98-110.
Number System without a Zero-Symbol. A, *Foster, James E.* 21 (1947) 39-41.
Number Systems Simultaneously. Algorithms That Use Two, *Karst, Edgar.* 40 (1967) 91-97.
Number Theorem. The Lucky, *Hawkins, David and Briggs, W.E.* 31 (1957) 81-84; *Reprinted* 31 (1958) 277-280.
Number Theoretic Functions Which Satisfy [the Functional Equation] f(x+y) = f(f(x) + f(y)). On, *Simone, Joseph N.* 46 (1973) 213-215.
Number Theory. A Chain Reaction Process in, *Botts, Truman.* 40 (1967) 55-65.
Number Theory. On a Problem in, *Reich, Simeon.* 44 (1971) 277-278; *Comment* 48 (1975) 48.
Number Theory. Resistance Circuits and Things Synthesized by, *Benson, Arne.* 34 (1961) 125-130; *Comment* 34 (1961) 233.
Number Theory. Some Expansions in, *Scholomiti, N.C. and Hill, R.G.* 35 (1962) 79-85.
Number Theory, with Comments on the Tarry-Escott Problem. Applications of an Operator to Algebra and to, *Grossman, Howard D.* 19 (1945) 385-390.
Numbers. *Gurney, Ginsey.* 38 (1965) 168.
Numbers (I-IV). A Development of Associative Algebra and an Algebraic Theory of, *Vandiver, H.S. and Weaver, Milo* (Parts III, IV). 25 (1952) 233-250; 27 (1953) 1-18; 29 (1956) 135-151; 30 (1956) 1-8; *Errata* 30 (1957) 219.
Numbers. A Fibonacci-Like Sequence of Composite, *Graham, R.L.* 37 (1964) 322-324.
Numbers. A Linear Form Result in the Geometry of, *Mordell, L.J.* 45 (1972) 152-154.
Numbers and Number Systems. *Ringenberg, Lawrence A.* 31 (1958) 265-276.
Numbers and Polynomials. Eulerian, *Carlitz, Leonard.* 32 (1959) 247-260.
Numbers. Another Interesting Property of Two Consecutive, *Salkind, Charles T.* 38 (1965) 231.
Numbers] by P.A. Piza. Comment on Two Papers [Escalator and Kummer, *Becker, H.W.* 22 (1949) 213-214.
Numbers by Ratios of Positive Integers. Approximations to Incommensurable, *Thomas, Paul D.* 36 (1963) 281-289.
Numbers. Escalator, *Piza, Pedro A.* 21 (1947) 91-93.
Numbers for Undergraduates. The Theory of, *Starke, Emory P.* 10 (1935) 53-57.
Numbers Game. [*Time Magazine*]. 26 (1952) 43.
Numbers in America Today. The Theory of, *Christilles, William Edward.* 36 (1963) 188-189.
Numbers. Isolate, *Ransom, William R.* 17 (1943) 268-269.

Numbers. Keep the Signless, *Ransom, William R.* 34 (1961) 156.
Numbers. Kummer, *Piza, Pedro A.* 21 (1948) 257-260.
Numbers. Multiple, *Tierney, John A. and Tyler, John.* 31 (1957) 27-29.
Numbers]. Multum in Parvo [: Large, *Wilder, Geo. F.* 4:2 (1929) 12-14.
Numbers. Permutation, *Jaffe, Jeffrey.* 49 (1976) 80-84; *Comment* 49 (1976) 223.
Numbers Related to the Bernoulli Numbers. Some, *Rough, Mike.* 29 (1955) 101-103.
Numbers. Side-and-Diagonal, *Waugh, Frederick V. and Maxfield, Margaret W.* 40 (1967) 74-83.
Numbers. Solution of a Functional Equation in the Multiplicative Theory of, *Bell, E.T.* 24 (1951) 233-235.
Numbers. Some Integrals for Genocchi, *Gandhi, J.M.* 33 (1959) 21-23.
Numbers]. Strobogrammatic Years [, *Howell, John M.* 34 (1961) 182.
Numbers. The Elementary Theory of, *Bell, E.T.* 23 (1949) 45-51.
Numbers Using Only One 4. Representing, *Knuth, Donald E.* 37 (1964) 308-310.
Numeral System of Antiquity. An Overlooked, *Shaw, Allen A.* 13 (1939) 368-372.
Numerical Analysis and the Dirichlet Problem. *Greenspan, Donald.* 32 (1959) 177-188.
Numerical Congruence. A, *Trigg, Charles W.* 34 (1961) 358.
Numerical Equations by Use of the Circle of Curvature. Solution of, *Wells, Richard J.* 13 (1938) 67-72.
Numerical Equations. The Solution of, *Bell, Clifford.* 14 (1940) 435-438.
Numerical Integration. The Midpoint Method of, *Hammer, Preston C.* 3:1 (1958) 193-195.
Numerical Investigation. Setting the Handicap in Billiards, A, *Neuts, Marcel F.* 46 (1973) 119-127.
Numerical] Methods and Extant Problems in the Solution of Polynomial Equations. On Popular [, *Greenspan, Donald.* 31 (1958) 239-253.
Numerical Notations and Their Influence on Mathematics. *Lehmer, D.H.* 7:6 (1933) 8-12.
Numerical] Roles for Old Figures. New [, *Kovach, Ladis D.* 35 (1962) 294-297; *Sequel* 36 (1963) 257.
Nut Cutter. The Mathematics of a, *Reynolds, Joseph B.* 19 (1945) 159-162.

O

Obituary:] Aristotle D. Michal, 1899-1953. [, *Hyers, D.H.* 27 (1954) 237-244.
Obituary:] Carl Friedrich Geiser. [, *Emch, Arnold.* 12 (1938) 286-289.
Obituary:] Émile Picard. [, *Dunnington, G. Waldo.* 16 (1942) 186-187.
Obituary:] Henry Lewis Rietz, 1875-1943. [, *Smith, C.D.* 18 (1944) 182-184.
Obituary:] Professor James McGiffert. [, *Merrill, Lynn L.* 18 (1944) 142-144.
Obituary:] U.G. Mitchell, 1872-1942. [, *Dunnington, G. Waldo.* 16 (1942) 240-242.
Objective in the Teaching of Mathematics. The Most Important, *Gisonti, Frank.* 27 (1953) 37-38.
Oblique Projection, Simplified. *Shapiro, Isidor F.* 17 (1943) 177-179.
Observation About Statistical Formulae, An, *Webber, W. Paul.* 3:7 (1929) 18-19.
Observations on the Anchor Ring [Torus]. Some, *Parker, W. Vann.* 6:7 (1932) 19-21.
Observed Geometric Series. A Note on, *Soble, A.B.* 14 (1940) 372.
Obvious" But Useful Theorem About Closed Curves. An ", *Schaer, Jonathan.* 45 (1972) 154-155.
Occupancy Problem Involving Placement of Pairs of Balls. An, *Wiggins, Alvin D.* 45 (1972) 82-85; *Comments* 45 (1972) 281; 48 (1975) 48.
Occupancy Problem with Variably Sized Runs of Adjacent Cells Occupied by Single Balls. General Solution to the, *Pease, Roger W., Jr.* 48 (1975) 131-134.
Occurrence of Digits. The, *Wagner, F.J.* 37 (1964) 177-178.
Octagons. The 202, *Chilton, Bruce L.* 40 (1967) 206-209.
Octahedron. The Melancholy [Dürer], *Federico, P.J.* 45 (1972) 30-36; *Comment* 45 (1972) 280.
Octo-Binary System. The, *Wishard, G.W.* 11 (1937) 253-254.
Odd Integers. A Note on Sums of Squares of Consecutive, *Hunter, J.A.H.* 42 (1969) 145.
Odd Integers" by Brother U. Alfred. Remark on the Paper "Sums of Squares of Consecutive, *Makowski, Andrzej.* 43 (1970) 212-213; *Comments* 44 (1971) 242; 45 (1972) 279.
Odd Integers. Note on Sums of Squares of Consecutive, *Sollfrey, William.* 41 (1968) 255-258.
Odd Integers. Sums of Squares of Consecutive, *Alfred, Brother U.* 40 (1967) 194-199; *Sequels* 41 (1968) 255-258; 42 (1969) 145; 43 (1970) 212-213.
Odd Path Sums in an Edge-Labeled Tree. *Taylor, Herbert.* 50 (1977) 258-259.
Ode to the Continuum Hypothesis. *Machover, Maurice.* 50 (1977) 94.
Off the Beaten Path with Some Differentiation Formulas for the Trigonometric Exponential and Logarithmic Functions. *Eaves, James Clifton.* 26 (1953) 147-152.

Old Slants and a New Twist to the Cone. Some, *Lloyd, Daniel B.* 34 (1961) 293-296; *Comment* 36 (1963) 67-68.
Old Time Computer. An, *Ransom, William R.* 27 (1954) 205-207.
Oltramare. Some Formulas of, *Carlitz, Leonard.* 27 (1954) 189-194.
Omega. *Ransom, William R.* 25 (1952) 277-279.
One-Parameter Family of Straight Lines. Envelopes Associated with a, *Montague, Harriet F.* 13 (1938) 73-75.
One Side Tangents. *Ransom, William R.* 29 (1956) 159-160.
One-Sided Directional Derivatives. A Note on, *Friedlen, D.M. and Nashed, M. Z.* 41 (1968) 147-150.
One-Sided Limits and Integrability. *Jones, W.R. and Landau, M.D.* 45 (1972) 19-21.
One. Using Zero and, *Ransom, William R.* 19 (1944) 33-35.
Open Mappings and the Fundamental Theorem of Algebra. *Thompson, R.L.* 43 (1970) 39-40; *Comment* 45 (1972) 113.
Open Problems of Interest in Applied Mathematics. *Winthrop, Henry.* 37 (1964) 112-118.
Open Sets. A Note on Convex Polygons Inscribed in, *Bruckner, Andrew M.* 37 (1964) 250-251.
Operation. Probability Functions for Computations Involving More Than one, *Locker, John L. and Perry, N.C.* 35 (1962) 87-89.
Operational Calculus. Complex Number Algebra as a Simple Case of Heaviside, *Moore, Douglas H.* 43 (1970) 269-272.
Operational Calculus. The, *Murnaghan, F. D.* 21 (1948) 117-138.
Operational Equations. *Bateman, H.* 9 (1935) 197-201.
Operational Equations with Constant Coefficients. Simple, *Lewis, D.C.* 27 (1954) 177-188.
Operational Methods in the Calculus of Finite Differences. Some, *Talacko, Joseph.* 31 (1957) 15-25.
Operations. A Remark on Nonassociative Binary, *Anderson, Philip H.* 44 (1971) 162-163.
Operations. Functional Equations Defining the Complementary, *Sanders, S.T.* 12 (1937) 115-117.
Operations on Signed Numbers. The [Arithmetic], *Miser, Wilson L.* 7:3 (1932) 3-5.
Operations Without Numbers. Advanced Algebra: *Arens, Richard.* 24 (1951) 253-264.
Operator D. A Note on the [Differential], *Christiano, John G. and Cormier, Romae J.* 37 (1964) 343-344.
Operator Mathematics. Foundations of, *Hines, Jerome.* 25 (1952) 251-261; 28 (1955) 199-207; 29 (1955) 69-76.
Operator Tf(x) = f(x+a)f(x+b)-f(x)f(x+a+b). The Functional, *Gould, H.W.* 37 (1964) 38-46.
Operator to Algebra and to Number-Theory, with Comments on the Tarry-Escott Problem. Applications of an, *Grossman, Howard D.* 19 (1945) 385-390.
Operators. Evaluation of Infinite Integrals by Heaviside, *Thomson, J.F.* 15 (1941) 173-176.
Operators. Factorization of Linear Second Order Differential, *Heinbockel, J.H.* 37 (1964) 302-304.
Operators on Decomposable Tensors. Norm Preserving, *Bronson, Richard.* 46 (1973) 100.
Oppenheim Inequality. An, *Trigg, Charles W.* 36 (1963) 244.
Opportunities for Mathematically Trained College Graduates. *Sokolnikoff, I.S.* 21 (1947) 102-105.
Opportunities in Insurance for the Mathematically Trained. *Rosser, Harwood.* 25 (1952) 205-210.
Optics. Transformations and, *Bergman, George M.* 34 (1961) 215-217.
Optimal Investment Under Risk. *Gallin, Daniel and Shapiro, Edwin.* 49 (1976) 235-238.
Optimal Strategy for Serving in Tennis. *Gale, David.* 44 (1971) 197-199.
Optimum Selection and Optimum Registration (Equilibrium of Awareness). *Pikler, Andrew.* 24 (1951) 175-189.
Orange Mathematics Prize Competition. William B., *Anonymous.* 29 (1955) 77-82.
Orbit Transfer Groups. *Vargo, Louis G.* 36 (1963) 79-80.
Orbits by Elementary Mathematics. A Study of Conic Section, *Coffman, Raphael T.* 36 (1963) 271-280.
Order. On the Intrinsic Derivative of Generalized, *Sasayama, Hiroyoshi.* 30 (1957) 135-143.
Order Statistics. A Note on Densities of, *Makowski, Gary G.* 47 (1974) 100-101.
Order Two. On Group Elements of, *Monzingo, M.G.* 44 (1971) 97-99.
Ordering and Identification. Permutation, *Shahdan, Peter.* 34 (1961) 353-358.
Orders of Abelian Groups. Distribution of, *Kane, Jonathan M.* 49 (1976) 132-135.
Ordinates for Student's Distribution. *Howell, John M.* 36 (1963) 255-256.
Origin and Development of Tables of Weight, Length and Time. The, *Sleight, E.R.* 19 (1945) 236-243.
Origin [, History], and Use of Decimals. Notes on the, *Forno, Dora M.* 3:8 (1929) 5-8.
Origin of a Mathematical Concept [: The Symbol]. The, *James, Glenn.* 7:5 (1933) 3-6.

Origin of Cartesian Symbolism. On the, *Pogorzelski, H.A.* 33 (1960) 184.
Original Malfatti Problem. On the, *Goldberg, Michael.* 40 (1967) 241-247.
Orthic Triangle. An Inequality for the Perimeter of the, *Carlitz, Leonard.* 39 (1966) 289.
Orthic Triangle and an Inequality of Euler. The, *Chakerian, G.D.* 46 (1973) 219-220.
Orthogonal and Hermitian Operators to a Given Operator. Closest Unitary, *Keller, Joseph B.* 48 (1975) 192-197.
Orthogonal Polynomials and Polynomials in General, *Shohat, J.A.* 21 (1947) 3-21.
Orthogonal Tetrahedron. *Mandan, Sahib Ram.* 31 (1958) 127-131.
Orthogonal Vectors. On the Product of Norms of, *Hyde, Beverly M.* 40 (1967) 141-143.
Orthogonality. On a Characterization of, *Al-Salam, Waleed A.* 31 (1957) 41-44.
Orthogonality. On Isosceles, *Davis, Harry F.* 32 (1959) 129-131.
Oscillating Series. On Kaprekar's Periodic, *Shah, A.P. and Vaidya, A.M.* 41 (1968) 253-255.
Oscillation of a Function at a Point. An Application of the, *Venable, Tom C., Jr.* 44 (1971) 9-11.
Oscillator. On the Critically Damped, *Baslaw, Ronald S. and Hastings, Harold M.* 48 (1975) 105-106.
Osculating Conics of Physical Systems of Curves. The, *Kasner, Edward and DeCicco, John.* 25 (1952) 117-124.
Osculating Parabola to any Curve y = f(x). The, *Canaday, E.F.* 33 (1959) 105-107.
Oslo [Congress] Under the Integral Sign. *Dunnington, G. Waldo.* 11 (1936) 85-94.
Overlooked Numeral System of Antiquity. An, *Shaw, Allen A.* 13 (1939) 368-372.

P

p-adic Number. An Elementary Example of a Transcendental, *Suter, Glen H.* 49 (1976) 42.
p-Like Rings. A Note on, *Yaqub, Adil.* 33 (1960) 287-290.
p,q)-Continuous Functions. On (, *Chen, Louis H.Y. and Yap, Leonard Y.H.* 48 (1975) 30-33.
Packing Cylinders into Cylindrical Containers. *Kravitz, Sidney.* 40 (1967) 65-71.
Packing of Equal Circles in a Square. The, *Goldberg, Michael.* 43 (1970) 24-30.
Packing of Equal Circles Within a Circle. Dense, *Reis, George E.* 48 (1975) 33-37.
Packing of Equal Spheres in a Cube. On the Densest, *Goldberg, Michael.* 44 (1971) 199-208.
Packing of 14, 16, 17 and 20 Circles in a Circle. *Goldberg, Michael.* 44 (1971) 134-139.
Packing of Ten Equal Circles in a Square. On the, *Schaer, Jonathan.* 44 (1971) 139-140.
Packings in Three Dimensions. Simple Regular Sphere, *Smalley, Ian.* 36 (1963) 295-299.
Pairing Teams. *Davis, Edmund E.* 32 (1958) 99-100.
Palindromes and Palindromic Primes. On, *Gabai, Hyman and Coogan, Daniel.* 42 (1969) 252-254.
Palindromes by Addition. *Trigg, Charles W.* 40 (1967) 26-28; *Sequels* 42 (1969) 254-256; 45 (1972) 184-186, 186-187.
Palindromes by Addition in Base Two. *Brousseau, Brother Alfred.* 42 (1969) 254-256.
Palindromes by Reversal-Addition. A Note on, *Rebmann, Michael T. and Sentyrz, Frank, Jr.* 45 (1972) 186-187.
Palindromes by Reversal-Addition. More on, *Trigg, Charles W.* 45 (1972) 184-186.
Palindromes. Modular, *Hansen, Rodney T.* 44 (1971) 208-212.
Palindromes. On, *Harborth, Heiko.* 46 (1973) 96-99.
Palindromic Cubes. *Trigg, Charles W.* 34 (1961) 214.
Pandiagonal Magic Squares of Order $6t \pm 1$. On, *Hudson, Carolyn Brauer.* 45 (1972) 94-96.
Paper of Steinberg. Note on a, *Gould, H. W.* 33 (1959) 46-48.
Paper "Sums of Squares of Consecutive Odd Integers" by Brother U. Alfred. Remark on the, *Makowski, Andrzej.* 43 (1970) 212-213; *Comments* 44 (1971) 242; 45 (1972) 279.
Papers of Three Famous Mathematicians. Rejected, *Emch, Arnold.* 11 (1937) 186-189.
Parabola. Normals to the, *McGiffert, James.* 7:6 (1933) 12-17.
Parabola of Surety, A Sequel. The, *Butchart, J.H.* 28 (1955) 229-230.
Parabola of Surety by R.F. Graesser in V. 27, No. 4. Concerning the, *Russell, Dennis C.* 28 (1954) 52-54.
Parabola of Surety. The, *Graesser, R.F.* 27 (1954) 204; *Comments* 28 (1954) 52-54; 28 (1955) 229-230.
Parabola. The Parametric Representation of a Certain, *Byrne, William E.* 7:2 (1932) 13-16.
Parabola to any Curve y = f(x). The Osculating, *Canaday, E.F.* 33 (1959) 105-107.
Parabolas. Lattice, *DeTemple, Duane W. and Robertson, Jack M.* 50 (1977) 152-158.
Parabolic [Differential] Equations. Some Elementary Properties of the Fundamen-

tal Solution of, *Guenther, Ronald.* 39 (1966) 294-298.
Parachute Problem. Classroom Speculations on a, *Osborn, Roger.* 27 (1954) 265-267.
Paradox. A New Probability Model for Bertrand's, *Funkenbusch, William W.* 35 (1962) 144.
Paradox. Fibonacci Sequences and a Geometrical, *Horadam, A.F.* 35 (1962) 1-11.
Paradox. On Fibonacci Sequences and a Geometrical, *Kumar, Santosh.* 37 (1964) 221-223.
Paradox... On the Construction of Multiple Choice Tests or Barbarous Parodies of the Barber's, *Anonymous.* 43 (1970) 213-214.
Paradoxes are Acceptable in Boolean Algebra. Logical, *van Heerden, P.J.* 39 (1966) 175-178.
Parallel Postulate. The Triangle Area Formula Implies the, *Shene, C.K.* 45 (1972) 269-272.
Parallelogram Law. A Generalized, *Amir-Moéz, Ali R. and Hamilton, J.D.* 49 (1976) 88-89.
Parallelograms. Rational Triangles and, *Daykin, D.E.* 38 (1965) 46-47.
Parallelograms. Two Families of, *Crain, Karleton W.* 11 (1937) 304-309.
Parameter Family of Straight Lines. Envelopes Associated with a, *Montague, Harriet F.* 13 (1938) 73-75.
Parametric Equations of Certain Degenerate Conics. Note on, *Smith, H.L.* 3:6 (1929) 21-22.
Parametric Equations of the Straight Line. Note on, *Smith, H.L.* 3:3 (1928) 8-10.
Parametric Representation of a Certain Parabola. The, *Byrne, William E.* 7:2 (1932) 13-16.
Parametric Representations of a Circle in 3-Dimensional Euclidean Space. Two, *Unger, Leo.* 37 (1964) 100-111.
Parametric Solutions of Certain Diophantine Equations. *Thompson, Ronald B.* 8 (1933) 58-60.
Parametrization of Certain Quadrics. *Amir-Moéz, Ali R.* 39 (1966) 277-280.
Parentheses Symbols in Associative Distributive Algebra. On the Use of the Equivalence Symbol and, *Vandiver, H. S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Parity. Relatively Prime Amicable Numbers of Opposite, *Hagis, Peter, Jr.* 43 (1970) 14-20.
Parking Problem. Mathematical Analysis of the Parallel, *Allen, William A.* 34 (1960) 63-66.
Partial Derivatives. Axis Rotation Via, *Hagis, Peter, Jr.* 43 (1970) 211-212.
Partial Differential Equations. Derivation of Certain, *Redheffer, R.M.* 27 (1954) 195-200.
Partial Fraction Decomposition of a Rational Function. The, *Hamilton, Hugh J.* 45 (1972) 117-119.
Partial Fractions. *Smith, H.L.* 5:2 (1930) 18-24.
Partial Fractions. Decomposition of Rational Fractions Into, *Boldyreff, Alexander W.* 17 (1943) 261-267; *Reprinted (with examples)* 24 (1951) 139-146.
Partial Fractions. On, *Smith, H.L.* 2:6 (1928) 18-19.
Partial Fractions. The Complex Number in, *Gwinner, Harry.* 2:4 (1928) 16.
Partial Solution to a[n Array] Conjecture of Golomb. A, *Cohen, Martin J.* 38 (1965) 95.
Particles with a Common Centroid. Systems of, *Eves, Howard.* 28 (1954) 1-7.
Particular Plane Section of the Torus. On a, *Konhauser, Joseph D.E.* 38 (1965) 161.
Particular Products of Functions. On, *Labelle, Gilbert.* 35 (1962) 214.
Particular Solutions of Linear Difference Equations with Constant Coefficients. *Grimm, C.A.* 36 (1963) 54-59.
Particular Solutions of Second Order Linear Differential Equations with Constant Coefficients. *Grimm, C.A.* 32 (1958) 25-30.
Partition. Angle, *Rees, Warren A.* 38 (1965) 160.
Partitioning a Triangle Into 5 Triangles Similar To It. *Usiskin, Zalman and Wayment, Stanley G.* 45 (1972) 37-42.
Partitions. A Note on Congruence Properties of Certain Restricted, *Hickerson, Dean R.* 48 (1975) 102.
Partitions. Congruence Properties of Certain Restricted, *Thanigasalam, K.* 47 (1974) 154-156.
Partitions of an Integer N Into m Unequal Integral Parts. A Recursive Formula for the Number of, *Konečný, Václav.* 45 (1972) 91-94.
Partitions of Integers]. On Applications of van der Waerden's Theorem [on, *Rabung, John R.* 48 (1975) 142-148.
Partitions of Integers. On Unequal, *Sugai, Iwao.* 33 (1960) 129-138; *Sequel* 34 (1960) 101-103.
Parts Formula to Summability of Series. Application of the Summation by, *Fort, Tomlinson.* 26 (1953) 199-204.
Pascal Matrices. *Moran, Daniel A.* 40 (1967) 12-14.
Pascal Triangle. Perfect Square Patterns in the, *Usiskin, Zalman.* 46 (1973) 203-208; *Comment* 48 (1975) 178.
Pascal Triangle. Some Generalizations of the, *Cadogan, Charles.* 45 (1972) 158-162.
Pascal-Type Triangles for the Fourier Expansions of $2^{n-1}\cos^n x$ and $2^{n-1}\sin^n x$. *Rasof, Bernard.* 40 (1967) 235-240.

Pascal's Arithmetical Triangle. Generalization of, *Tremblay, Althéod.* 11 (1937) 255-258.
Pascal's Theorem." Note on "The Extension of, *Maley, C.E.* 35 (1962) 109.
Pascal's Theorem. The Extension of, *Maley, C.E.* 34 (1961) 289-292.
Pascal's Theorem. Various Proofs of, *Tan, Kaidy.* 38 (1965) 22-30.
Pascal's Triangle. Recurrent Sequences and, *Green, Thomas M.* 41 (1968) 13-21.
Pasch, Menelaus and Ceva. The Affine Theorems of, *Abeles, Francine.* 45 (1972) 78-82.
Path of a Body Falling Freely Within the Earth. On the, *Rickey, F.A.* 4:6 (1939) 15-18.
Path Sums in an Edge-Labeled Tree. Odd, *Taylor, Herbert.* 50 (1977) 258-259.
Paths in Rectangular Lattice Graphs. Hamiltonian Tours and, *Thompson, Gerald L.* 50 (1977) 147-150.
Paths. More on Finite Subsets and Simple Closed Polygonal, *Gemignani, Michael C.* 39 (1966) 158-160.
Paths. On Finite Subsets of the Plane and Simple Closed Polygonal, *Gemignani, Michael C.* 39 (1966) 38-41.
Paths Within Polygons. Shortest, *Jacobson, R.A. and Yocom, K.L.* 39 (1966) 290-293.
Patterns" in Conformal Mapping. Regions and their ", *Miser, Hugh J.* 16 (1942) 333-337.
Payment. Loans with a Partial, *Stelson, H.E.* 37 (1964) 178-183.
Payments Have Been Made. A Comparison of the United States Rule With the Merchant's Rule for Computing the Maturity Value of a Note on Which Partial, *Barnett, Joseph, Jr.* 23 (1949) 24-26.
Peano Postulates. On Finite Sets and the, *Kearns, D.A.* 32 (1959) 217-219.
Peaucellier Linkage on the Surface of a Sphere. The, *Goldberg, Michael.* 38 (1965) 308-311.
Pedagogy (A How-to-do-it Manual) [Satire]. The Schnitzelbank School of Mathematical, *Fedëp, Ya. I.M.* 34 (1961) 340-343.
Pedal Ratios. On, *Bailey, D. Moody.* 38 (1965) 128-130.
Pedal Triangle. An Exact Perimeter Inequality for the, *Zirakzadeh, A.* 39 (1966) 96-99.
Pegs in Square Holes and Square Pegs in Round Holes. On Round, *Singmaster, David.* 37 (1964) 335-337.
Peirce's Philosophy of Infinite Sets. C. S., *Dauben, Joseph W.* 50 (1977) 123-135.
Peletier (1517-1582). A French Mathematician of the Sixteenth Century, Jacques, *Thébault, Victor T.* 21 (1948) 147-150.
Pell Equation. On the, *Grossman, Howard D.* 11 (1937) 352-353.
Pentagon. Properties of the Complete, *Bunch, William H.* 40 (1967) 132-140.
Pentagram." Comment on "A Magic, *Cohen, Daniel I.A.* 37 (1964) 49-50.
Pentagram for [the Number] 1962. A Magic, *Trigg, Charles W.* 35 (1962) 228; *Comment* 37 (1964) 49-50.
Perfect Numbers. *Garrett, Zena.* 3:6 (1929) 17-19.
Perfect Numbers. A Note on Almost, *Cross, James T.* 47 (1974) 230-231.
Perfect Numbers. Almost, *Jerrard, R.P. and Temperley, Nicholas.* 46 (1973) 84-87.
Perfect Numbers are of Euclid's Type. On the Proof that all Even, *McDaniel, Wayne L.* 48 (1975) 107-108.
Perfect Numbers. On the Digital Roots of, *Brooke, Maxey.* 34 (1960) 100, 124; *Comment* 35 (1962) 45-46.
Perfect Square Patterns in the Pascal Triangle. *Usiskin, Zalman.* 46 (1973) 203-208; *Comment* 48 (1975) 178.
Perfect Squares of the Form $(m^2-1)a_n^2+t$. *Klamkin, Murray S.* 42 (1969) 111-113.
Perimeter Bisectors. The Intersection Points of, *Sloyan, Sister M. Stephanie.* 36 (1963) 312-313.
Perimeter Inequality for the Pedal Triangle. An Exact, *Zirakzadeh, A.* 39 (1966) 96-99.
Perimeter-Magic and Perimeter-Antimagic Cubes. Second Order, *Trigg, Charles W.* 47 (1974) 95-97.
Perimeter of the Orthic Triangle. An Inequality for the, *Carlitz, Leonard.* 39 (1966) 289.
Perimetric Bisection of Triangles. The, *Avishalom, Dov.* 36 (1963) 60-62.
Periodic Elements of a Group Form a Subgroup? When do the, *Sherman, Gary J.* 47 (1974) 279-281.
Periodic Function. The Periods of a, *Burkill, H.* 47 (1974) 206-210.
Periodic Functions. On, *Webber, W. Paul.* 4:8 (1930) 12-17.
Periodic Oscillating Series. On Kaprekar's, *Shah, A.P. and Vaidya, A.M.* 41 (1968) 253-255.
Periodic Surface Waves of Permanent Type in a Channel of Infinite Depth. On the Local Uniqueness Problem for, *Hyers, D.H. and Ferling, J.A.* 31 (1957) 61-74.
Periodic Time-Varying [Mechanical] Systems. Stability of, *Pipes, Louis A.* 30 (1956) 71-80.
Periodicity. A Non-Rotational Operator of Third Order, *Soble, A.B.* 14 (1940) 443-444.
Periodicity for Fibonacci Numbers. A Type of, *Hoggatt, Verner E., Jr.* 28 (1955) 139-142.

Periods of a Periodic Function. The, *Burkill, H.* 47 (1974) 206-210.
Periods of Polynomials Modulo p. *Daykin, D.E.* 37 (1964) 274-275.
Permanent Function and the Problem of Montmort. The, *Johnson, James J.* 46 (1973) 80-83.
Permanents and Bipartite Graphs. Determinants, *Harary, Frank.* 42 (1969) 146-148.
Permutation Numbers. *Jaffe, Jeffrey.* 49 (1976) 80-84; *Comment* 49 (1976) 223.
Permutation Ordering and Identification. *Shahdan, Peter.* 34 (1961) 353-358.
Permutation] Way of Redemption. The [, *Tepper, Myron D.* 37 (1964) 269-271.
Permutations. Choreographic Proof of a Theorem on, *Cunningham, F., Jr.* 43 (1970) 154-155.
Permutations]. Coin Strings [and, *Gombert, Jan M.* 42 (1969) 244-247.
Permutations from [the Number] 1961. *Trigg, Charles W.* 34 (1961) 406.
Permutations. On a Formula for Circular, *Grant, Harold Sinclair.* 23 (1950) 133-136.
Pertinent Historical Material for a Slide Rule Course. *Sleight, Norma.* 20 (1945) 11-20.
Perversion of Purpose in Elementary Mathematical Education. *Schaaf, William L.* 19 (1945) 406-413.
Pestalozzi and the American Arithmetic. *Sleight, E.R.* 11 (1937) 310-317.
Pfaff. Johann Friedrich, *Dunnington, G. Waldo.* 11 (1937) 263-267.
$\phi(n)$. Inequalities for $\sigma(n)$ and, *Annapurna, U.* 45 (1972) 187-190; *Comment* 46 (1973) 161.
$\phi(x) = k$. The Equation, *Mendelsohn, N.S.* 49 (1976) 37-39.
ϕ-Function. A Generalized Euler, *Cohen, Eckford.* 41 (1968) 276-279.
ϕ-Function. A Note on Euler's, *Verma, Sadanand.* 38 (1965) 208-211.
Philately. A Note on Mathematics and, *Pinzka, C.F.* 34 (1961) 169.
Philately. Mathematics and, *Brooke, Maxey.* 34 (1960) 31-32; *Comment* 34 (1960) 297.
Philosopher and Mathematics. The, *Sanders, S.T.* 8 (1934) 121-124.
Philosophic Aspects of Geometry. Some Historic and, *Osborn, Roger.* 24 (1950) 77-82.
Philosophy in the Last Three Centuries. Interrelations Between Mathematics and, *Kennedy, E.S.* 16 (1942) 290-298.
Philosophy of Descartes. The Influence of Mathematics on the, *Moorman, R.H.* 17 (1943) 296-307.
Philosophy of Infinite Sets. C.S. Peirce's, *Dauben, Joseph W.* 50 (1977) 123-135.
Philosophy of Leibniz. The Influence of Mathematics on the, *Moorman, R.H.* 19 (1944) 131-140.
Philosophy of Spinoza, The Influence of Mathematics on the, *Moorman, R.H.* 18 (1943) 108-115.
Philosophy. On the First Two Chapters of Russell's Introduction to Mathematical, *Sanders, S.T.* 6:1 (1931) 18-21.
Physical Principle. A Proof of Euler's Limit From a Well Known, *Shafer, Robert E.* 32 (1959) 211-212.
Physical Systems of Curves. The Osculating Conics of, *Kasner, Edward and DeCicco, John.* 25 (1952) 117-124.
Physically Large and Small Quantities. On, *Maizlish, I.* 4:7 (1930) 22-24.
πe and $\pi+e$ Are Algebraic. A Proof that Not Both, *Brubaker, David A.* 44 (1971) 267.
π-Hedral Surfaces in Quasi-Quasi Space [Satire]. On Some, *Hopper, Claude.* 41 (1968) 89-90.
π. History of, *Rice, Dorothy.* 2:5 (1928) 6-8.
π. On Huygens' Approximation To, *Nanjundiah, T.S.* 44 (1971) 221-223.
π_t: 1832-1879. *Dudley, Underwood.* 35 (1962) 153-154.
Pi. The Chronology of, *Schepler, Herman C.* 23 (1950) 165-170, 216-228, 279-283.
Picard. [Obituary:] Émile, *Dunnington, G. Waldo.* 16 (1942) 186-187.
Pick's Theorem. Triangulations and, *Gaskell, Robert W., Klamkin, Murray S. and Watson, P.* 49 (1976) 35-37; *Comment* 49 (1976) 105, 158.
Piza. Comment on Two Papers [Escalator and Kummer Numbers] by P.A. *Becker, H.W.* 22 (1949) 213-214.
Place of Mathematics and its Teaching in the Schools of This Country. The, *Seidlin, Joseph.* 10 (1936) 304-307; 11 (1936) 24-45, 147-151.
Place of Mathematics in a Liberal Education. The, *Richardson, M.* 19 (1945) 349-358.
Placement of Pairs of Balls. An Occupancy Problem Involving, *Wiggins, Alvin D.* 45 (1972) 82-85; *Comments* 45 (1972) 281; 48 (1975) 48.
Placement of Simplices. Canonical, *Kenelly, John W. and Sobczyk, Andrew.* 41 (1968) 150-152.
Placement Program. A Freshman, *Smith, C. D.* 4:5 (1930) 9-10.
Placement Test. The Construction and Use of a Mathematics, *Gere, Brewster H.* 16 (1942) 400-406.
Planar Incidence Geometries with Two Points Per Line. *Whitney, R.E.* 40 (1967) 265-267.
Plane: *see also* Euclidean.
Plane. A Doodling Problem Involving the Density of Segment-Generated Sets of Points in Regions of a, *Heacock, Larry.* 42 (1969) 60-66.
Plane Analytics. The Straight Line in, *Smith, H.L.* 2:2 (1927) 12-14.

Plane and Simple Closed Polygonal Paths. On Finite Subsets of the, *Gemignani, Michael C.* 39 (1966) 38-41.
Plane. Conic Sections in the Elliptic, *Goodner, Dwight B.* 34 (1960) 81-94.
Plane] Geometries. Some Finite Point [, *Di Paola, Jane W.* 50 (1977) 79-83.
Plane Geometry. *Harris, Elizabeth.* 4:6 (1930) 6-13.
Plane Geometry and Complex Numbers. *Blake, Robert G.* 35 (1962) 239-242.
Plane Geometry. On Teaching a Unit in, *Congleton, James Edmund.* 7:4 (1933) 16-21.
Plane Geometry. The Investigative Method vs. the Traditional Method of Studying, *Miller, Leroy S.* 6:2 (1931) 6-8.
Plane Geometry. The Meaning of, *Mazziotta, Estelle.* 21 (1948) 273-284.
Plane. Monochromatic Lines in the, *Tingley, Daryl.* 48 (1975) 271-274.
Plane. Multiple Subdivisions of the, *Marley, Gerald C.* 47 (1974) 202-206.
Plane. On the Classification of Collineations in the, *Lasley, John W., Jr.* 19 (1944) 11-20.
Plane. On the Problem of Three Bodies in a, *Szebehely, Victor G.* 26 (1952) 59-66.
Plane. On the Projection of an Angle Upon a, *Rickey, F.A.* 11 (1937) 209-212.
Plane Quartic of Genus Two. The, *Emch, Arnold.* 12 (1937) 5-12.
Plane Sets. Computation of Constrained, *Lohman, Robert H. and Morrison, Terry J.* 50 (1977) 201-205.
Plane. Some Groups of Linear Transformations in the, *Lundberg, G.H.* 34 (1961) 375-385.
Plane. The Dihedral Group of Linear Transformations in the, *Lundberg, G.H.* 41 (1968) 206-210.
Plane. The Icosahedral Group of Linear Transformations in the, *Lundberg, G.H.* 38 (1965) 80-94.
Plane. The Isoperimetric Problem in the, *Bredon, Glen E.* 30 (1956) 63-69.
Plane Under Certain Groups. Basic Configurations of the, *Steele, M. Philip, Sr. and McBrien, V.O.* 23 (1949) 5-14.
Planetary Motions. The Calculation of, *Wollard, Edgar W.* 14 (1940) 179-189.
Platinum Proportions. The Golden and, *Bell, E.T.* 19 (1944) 21-26.
Plea for Mathematics. A, *Young, Violet S.* 6:1 (1931) 12-17.
Plotting the Cubic. *Nichols, Irby C.* 3:5 (1929) 18-21.
Point: *see also* Fixed, Lattice.
Point Algebra. *Pitts, Richard.* 36 (1963) 183-187.
Point.Distance from Line to, *Moore, Douglas H.* 38 (1965) 219-221.
Point From a Line. The Distance of a, *Brown, T.A.* 37 (1964) 157-159.
Point of Intersection of Triangle Transversals. *Bailey, D. Moody.* 37 (1964) 331-333.
Point Set Geometry. *Killgrove, Raymond B.* 44 (1971) 115-119.
Point to a Line. An Easy Way From a, *Eisenman, R.L.* 42 (1969) 40-41.
Point To Line Distance. *Ransom, William R.* 33 (1960) 218.
Point Transformations. On, *Verdina, Joseph.* 42 (1969) 187-193.
Points Associated with a Triangle. Notable, *Peters, J.W.* 13 (1938) 122-126.
Points. Line Determined by Two, *Bailey, D. Moody.* 41 (1968) 183-187.
Points of Polygonal Regions. *Marcus, Curt F.* 35 (1962) 71-72.
Poisson Law. A Note on the, *Redheffer, R.M.* 26 (1953) 185-188.
Polar Coordinates. An Easy Method for Drawing Curves in, *Bettinger, A.K.* 11 (1937) 327-331.
Polar Co-ordinates. Sketching Loci in, *Andree, Richard V.* 24 (1951) 277.
Polar Moment of Inertia. Geometric Inequalities via the, *Klamkin, Murray S.* 48 (1975) 44-46.
Polar Projection with Respect to Normal Curves. On the, *Inagaki, Masaru.* 31 (1958) 141-153.
Polar Symmetry. *Lariviere, R.* 28 (1955) 270.
Policing the Market Place. *Pearl, Martin H. and Goldman, Alan J.* 50 (1977) 179-185.
Polish Science and Learning. Copernicus, Representative of, *Karpinski, Louis C.* 19 (1945) 343-348.
Pólya's Enumeration Formula by Example. *Tucker, Alan.* 47 (1974) 248-256.
Polygon. The Number of Regions Determined by a Convex, *Freeman, J.W.* 49 (1976) 23-25.
Polygon with Given Sides. Maximum Area of a Region Bounded by a Closed, *Demir, Huseyin.* 39 (1966) 228-231.
Polygonal Paths. More on Finite Subsets and Simple Closed, *Gemignani, Michael C.* 39 (1966) 158-160.
Polygonal Paths. On Finite Subsets of the Plane and Simple Closed, *Gemignani, Michael C.* 39 (1966) 38-41.
Polygonal Regions. Points of, *Marcus, Curt F.* 35 (1962) 71-72.
Polygons as Fundamental Elements in the Geometry of Plane Cubic Curves. *Feld, J.M.* 14 (1940) 367-371.
Polygons by Rational Polygons. On Approximating, *Sheng, T.K. and Daykin, D.E.* 39 (1966) 299-300.
Polygons in Arrangements Generated by n Points. *Grünbaum, Branko.* 46 (1973) 113-119.
Polygons Inscribed in Open Sets. A Note on Convex, *Bruckner, Andrew M.* 37 (1964) 250-251.

Polygons of pq Sides Leading to a Geometric Proof of rp - sq = 1. A Construction of Regular, *Johnson, Paul B.* 38 (1965) 164-165.
Polygons. Shortest Paths Within, *Jacobson, R.A. and Yocom, K.L.* 39 (1966) 290-293.
Polygons. The Law of Sines and Law of Cosines for, *Kershner, R.B.* 44 (1971) 150-153.
Polygons. Tilings by Regular, *Grünbaum, Branko and Shephard, Geoffrey C.* 50 (1977) 227-247.
Polyhedra. On Convex, *Chand, D.R. and Kapur, S.S.* 43 (1970) 202-209.
Polyhedral Faces. On, *Schwartz, Benjamin L.* 48 (1975) 289-290.
Polyhedral Linkages. *Goldberg, Michael.* 16 (1942) 323-332.
Polyhedron. The Maximum Diameter of a Convex, *Jucović, E. and Moon, J.W.* 38 (1965) 31-32.
Polynomials: *see also* Bernstein, Cyclotomic, Legendre, Trigonometric.
Polynomial] $a^{2n} + a^n + 1$. Factorization of [the, *Salkind, Charles T.* 38 (1965) 163; *Sequel* 42 (1969) 41-42.
Polynomial. A Property of the Zeros of a, *Mandelbaum, Joseph and Schild, Albert.* 42 (1969) 247-248.
Polynomial. A Theorem on Rational Zeros of a, *Leighton, Walter.* 45 (1972) 156-158; *Comment* 45 (1972) 282.
Polynomial. Approximating the Zeros of a, *Cook, Erben, Jr.* 35 (1962) 165-172.
Polynomial as Functions of the Coefficients. The Analyticity of the Roots of a, *Brillinger, David R.* 39 (1966) 145-147.
Polynomial. Bounds on the Roots of a, *Hearon, John Z.* 49 (1976) 240-242.
Polynomial $f(n) = n^2 - n + 41$. Elementary Observations Concerning Euler's Prime Generating, *Kravitz, Sidney.* 35 (1962) 152; *Sequel* 36 (1963) 313-314.
Polynomial Equations. On Popular [Numerical] Methods and Extant Problems in the Solution of, *Greenspan, Donald.* 31 (1958) 239-253.
Polynomial Equations. Real Solutions of Classes of, *Jackson, Stanley B.* 42 (1969) 128-132.
Polynomial Images of Circles and Lines. *Cargo, Gerald T. and Schneider, W.J.* 40 (1967) 1-4.
Polynomial] $N^2 + 21N + 1$ as a Generator of Primes. [The, *Hunter, J.A.H.* 38 (1965) 232.
Polynomial on Various Arcs of the Complex Domain. The Derivative of a, *Sewell, W.E.* 12 (1938) 167-170.
Polynomial. Solution of an Equation in a Linear Algebra by Means of the Minimal, *Kieffer, John C. and Stein F. Max.* 42 (1969) 114-121.
Polynomial Solutions of Certain Linear Differential Equations by Differentiation. *Falbo, Clement Earl.* 35 (1962) 21-26.
Polynomial Terms. Summation of Finite Series with, *Farnell, Albert B.* 17 (1942) 68-69.
Polynomial. The Sum of a, *Feld, J.M.* 11 (1937) 213-216.
Polynomial. Upper Bounds on the Moduli of the Zeros of a, *Riddell, R.C.* 47 (1974) 267-273.
Polynomial] $x^2 + 1$. Powers of [the, *Shapiro, Harold N.* 50 (1977) 208-209.
Polynomials. A Note Concerning Homogeneous, *Morelock, J.C. and Perry, N.C.* 31 (1957) 75-79.
Polynomials. A Note on the Geometry of Zeros of, *Long, Clifford A.* 44 (1971) 157-159.
Polynomials and Functions. *Kattsoff, Louis O.* 33 (1960) 157-160.
Polynomials and Polynomials in General. Orthogonal, *Shohat, J.A.* 21 (1947) 3-21.
Polynomials Associated with the Triangle. On Certain, *Blundon, W.J.* 36 (1963) 247-248.
Polynomials. Certain Non-factorable, *Holder, Doyne.* 31 (1957) 80.
Polynomials. Eulerian Numbers and, *Carlitz, Leonard.* 32 (1959) 247-260.
Polynomials. Extrema of, *Boas, Ralph P., Jr. and Klamkin, Murray S.* 50 (1977) 75-78.
Polynomials. Fibonacci Analogs of the Classical, *Shannon, A.G.* 48 (1975) 123-130.
Polynomials. Finite Differences and Computation of, *De Greiff B., Luis.* 34 (1961) 401-405.
Polynomials for Best Approximation Over Semi-Infinite and Infinite Intervals. *Salzer, Herbert E.* 23 (1949) 59-69.
Polynomials Having Rolle's Property and the Mean Value Property for Derivatives. A Note on Complex, *Dotson, W. G., Jr.* 41 (1968) 140-144.
Polynomials in Hyperspheres and Fréchet-Michal Derivatives in Real and Complex Normed Linear Spaces. On Bounds of, *Michal, Aristotle D.* 27 (1954) 119-126.
Polynomials. Inequalities for the Derivatives of, *Boas, Ralph P., Jr.* 42 (1969) 165-174.
Polynomials Modulo p. Periods of, *Daykin, D.E.* 37 (1964) 274-275.
Polynomials Over Fields. *Oldenburger, Rufus.* 15 (1940) 3-26.
Polynomials. Summing Series Whose General Terms are, *Miser, Wilson L.* 6:7 (1932) 17-19.
Polynomials. The Multiplication Formulas for the Bernoulli and Euler, *Carlitz, Leonard.* 27 (1953) 59-64.

Polynomials. The Product of Two Eulerian, *Carlitz, Leonard.* 36 (1963) 37-41.
Polynomials with Prescribed Integer Values. Integer, *Small, Charles.* 46 (1973) 92-94.
Polyomino Constructions. Solid, *Forseth, Scott L.* 49 (1976) 137-139.
Polytopes. Shadows of Four-Dimensional, *Chilton, Bruce L.* 44 (1971) 269-273.
Polytopes Without Using Complex Coordinates. Characterizing a Family of Complex, *Halsey, Eric.* 41 (1968) 273-276.
Pond [: a Puzzle]. The Beauty, The Beast, and the, *Schuurman, W. and Lodder, J.* 47 (1974) 93-95.
Popular [Numerical] Methods and Extant Problems in the Solution of Polynomial Equations. On, *Greenspan, Donald.* 31 (1958) 239-253.
Popularizing Mathematics. B.F. Thibaut [1775-1832], Early Master of the Art of Teaching and, *Dunnington, G. Waldo.* 11 (1937) 318-323.
Population Growth: Stability or Explosion? Human, *Smith, David A.* 50 (1977) 186-197.
Populations Which are the Sum of Two Normal Populations. F-Values for Samples of Four and Four Drawn from, *Baker, G. A.* 19 (1944) 62-63.
Poristic Locus of the Gergonne Point. The, *Arany, Daniel.* 13 (1939) 367.
Positive Definite Matrices. Diagonalizing, *Duemmel, James.* 39 (1966) 226-227.
Positive Integer. On the Smallest Prime Greater than a Given, *Kahan, Steven.* 47 (1974) 91-93.
Positive Integers. A Simple Irrationality Proof for nth Roots of, *Lange, L.J.* 42 (1969) 242-243.
Positive Integers as Sums of Arithmetic Progressions. Representations of, *Andrushkiw, Joseph W., Andrushkiw, Roman I. and Corzatt, Clifton E.* 49 (1976) 245-248.
Positive Integers] N. On the Subsemigroups of [the, *Sit, William Y. and Siu, Man-Keung.* 48 (1975) 225-227.
Positive Integers Onto [with Probability One]? Are Many 1-1 Functions on the [Infinite Set of], *Neuts, Marcel F.* 41 (1968) 103-109.
Positive Matrix. On the Product of Diagonal Elements of a, *Amir-Moéz, Ali R. and Johnston, G.E.* 42 (1969) 24-26.
Postulates. On Finite Sets and the Peano, *Kearns, D.A.* 32 (1959) 217-219.
Postulational Treatment of the Probability for Certain Types of Emissions. A, *Kalinowski, Walbert C. and Regan, Francis.* 25 (1952) 175-181.
Post-War Blueprint [for Education]. *Dorwart, Harold L.* 19 (1945) 194-196.
Post-War Planning for Mathematical Education. *Schaaf, William L.* 19 (1944) 147-149.
Power-Law Devices. Haromine Distortion in, *Kaufman, H.* 28 (1955) 245-250.
Power-Law Devices. Modulation Products in, *Kaufman, H.* 30 (1956) 9-17.
Power of 2? When [in what Rings] is -1 a, *Siu, Man-Keung.* 48 (1975) 284-286; *Comment* 49 (1976) 156-157.
Power of Voting Blocs: An Example. The, *Straffin, Philip D., Jr.* 50 (1977) 22-24.
Power Series by $[1-\alpha x)^n$. Division of a, *Mazkewitsch, D.* 33 (1960) 291-293.
Power Series. Ideals of Square Summable, *Rovnyak, James.* 33 (1960) 265-270; *Correction* 34 (1960) 41-42.
Power Series. On the Summation of, *Michalup, Eric.* 24 (1951) 129-133.
Power Series. Trigonometric, *Staib, John H.* 49 (1976) 147-148.
Powerful Thing in the World [--Zero]. The Most, *Neureiter, Paul R.* 19 (1945) 244-246.
Powers. A Representation of Certain Integer, *Bell, E.T.* 20 (1945) 3-4.
Powers. Fractional Indices, Exponents, and, *Boyer, Carl B.* 18 (1943) 81-86.
Powers, k = 1,2. On Sums of Consecutive kth, *Ewell, John A.* 48 (1975) 203-207.
Powers mod n. *Small, Charles.* 50 (1977) 84-86.
Powers of Point Sets. Conic, *Maley, C.E.* 38 (1965) 152-158.
Powers of Sums and Sums of Powers. *Piza, Pedro A.* 25 (1952) 137-142.
Powers of [the Polynomial] $x^2 + 1$. *Shapiro, Harold N.* 50 (1977) 208-209.
Powers. Products of Sums of, *Nathanson, Melvyn B.* 48 (1975) 112-113.
Powers. Sums of, *Tepper, Myron D.* 38 (1965) 17-19.
Powers with kth Power Partial Sums. Sequences of kth, *Klarner, David A.* 37 (1964) 165-167.
Practical Man and the Pure Mathematician: A Moral Essay [about Limits]. The, *Pursell, Lyle E.* 33 (1959) 33-34.
Precocity in Mathematics. [History of], *Sanders, S.T.* 7:3 (1932) 21-22.
Predicate Calculus. The Notion of "Consequence" in the, *Lightstone, A.H.* 42 (1969) 57-60.
Pre-Euclidean Fragment of the Elements. A, *Shaw, Allen A.* 13 (1938) 76-82.
Preliminary [Educational] Report on Homogeneous Grouping in Freshman Mathematics. A, *Seidlin, Joseph.* 7:7 (1933) 1-4.
Preparation in Mathematics for College Entrance. Ideal, *Seidlin, Joseph.* 26 (1952) 89-94.
Presentation of the Alternating Group on Five Symbols, A_5. A Group Theoretic, *Schenkman, Eugene.* 48 (1975) 170-171.
Pre-Study Examinations in Mathematics. *Cox, H.M.* 17 (1943) 351-359.

Primality. Relative, *Sanders, S.T.* 5:3 (1930) 18-24.
Prime: *see also* Mersenne, Relatively.
Prime. A Formula for the nth, *Tower, Jacob.* 23 (1949) 55-57.
Prime Factorization and Lattice Points. Unique, *De Boor, Carl and Schoenberg, I.J.* 46 (1973) 198-203.
Prime Factors of a Pair of Relatively Prime Amicable Numbers. On the Number of, *Hagis, Peter, Jr.* 48 (1975) 263-266.
Prime Generating Function]. A Note on a Comment to Problems and Questions [about a, *Christilles, William Edward.* 35 (1962) 47-48.
Prime Generating Polynomial $f(n) = n^2 - n + 41$. Elementary Observations Concerning Euler's, *Kravitz, Sidney.* 35 (1962) 152; *Sequel* 36 (1963) 313-314.
Prime Generator] N^2-N+A. Further Results with [the, *Hunter, J.A.H.* 36 (1963) 313-314.
Prime Greater than a Given Positive Integer. On the Smallest, *Kahan, Steven.* 47 (1974) 91-93.
Prime Number. An Explicit Formula for the kth, *Regimbal, Stephen.* 48 (1975) 230-232; *Comment* 49 (1976) 50.
Prime Number Theorem. A Special Case of a, *Lariviere, R.* 31 (1958) 281.
Prime Numbers. A Theorem Concerning, *Crocker, Roger.* 34 (1961) 316, 344; *Comment* 35 (1962) 227.
Prime Portions of [the Number] 1961. *Trigg, Charles W.* 34 (1961) 274.
Prime Primes. *Walstrom, John E. and Berg, Murray.* 42 (1969) 232.
Prime Representing Function. A, *Moser, Leo.* 23 (1950) 163-164.
Primes. A Formula Concerning Twin, *Kostis, Georgetta J. and Page, Robert L.* 37 (1964) 193-194.
Primes. A "Lattice Point" Proof of the Infinitude of, *Chernoff, Paul R.* 38 (1965) 208.
Primes. Analytic Functions Related to, *Redheffer, R.M.* 24 (1951) 135-138.
Primes and Integers. Some Aspects of, *Sanders, S.T.* 5:4 (1930) 19-23.
Primes by the Use of Integral Binary Quadratic Forms. An Elementary Analysis of the Factorization of Integers and the Determination of, *Christilles, William Edward.* 36 (1963) 31-35; *Correction* 37 (1964) 32.
Primes in Arithmetic Progression. Alternate, *Trigg, Charles W.* 35 (1962) 42.
Primes in [Arithmetic Progressions]. On, *Vaidya, A.M.* 40 (1967) 29-30.
Primes]. On a Conjecture of Murphy, II [on, *Makowski, Andrzej.* 35 (1962) 281.
Primes. On Palindromes and Palindromic, *Gabai, Hyman and Coogan, Daniel.* 42 (1969) 252-254.
Primes. On Sums of Inverses of, *Jordan, J.H.* 38 (1965) 259-262.
Primes. On the Existence of Absolute, *Bhargava, T.N. and Doyle, P.H.* 47 (1974) 233.
Primes Proved on a Chessboard. A Theorem about, *Larson, Loren C.* 50 (1977) 69-74.
Primes. Some Simple Aspects of, *Sanders, S.T.* 5:6 (1931) 12-16.
Primes [$\sqrt{n}$ is Irrational]. Look, Ma, No, *Fine, Nathan J.* 49 (1976) 249; *Comment* 50 (1977) 175.
Primes. The Infinitude of, *Trigg, Charles W.* 47 (1974) 162; *Sequel* 48 (1975) 92-96.
Primes. [The Polynomial] $N^2 + 21N + 1$ as a Generator of, *Hunter, J.A.H.* 38 (1965) 232.
Primitive Geometry. A, *Fulton, Curtis M.* 33 (1959) 27-29.
Primitive Integral Triangles. *Aude, H.T. R.* 16 (1942) 280-283.
Primitive Roots. A Note on, *Baum, John D.* 38 (1965) 12-14.
Primitive Roots without Quadratic Reciprocity. *Wilansky, Albert.* 49 (1976) 146.
Principal Ideal Domains. Note on Non-Euclidean, *Williams, Kenneth S.* 48 (1975) 176-177.
Principal Ideal Ring That is Not a Euclidean Ring. A, *Wilson, Jack C.* 46 (1973) 34-38.
Principles of Induction and a Sequence of Generosities. *Amir-Moéz, Ali R.* 31 (1958) 120, 132.
Prisms and Some Related Centroid Problems. On the Volume of a Class of Truncated, *Klamkin, Murray S.* 41 (1968) 175-181; *Correction* 42 (1969) 23.
Prisoner's Dilemma, A Stochastic Solution. *Hill, Walter W., Jr.* 48 (1975) 103-105.
Probabilistic Inequalities. A Note on the, *Kuang, H.P.* 34 (1961) 245-246.
Probabilities in the Game of Bridge. Bayes' Formula and a priori, *Divinsky, N.* 37 (1964) 235-241.
Probabilities That Depend on Direction of Motion. Random Walk with Transition, *Cohen, Leon.* 37 (1964) 248-250.
Probability. A Characterization of Conditional, *Teller, Paul and Fine, Arthur.* 48 (1975) 267-270.
Probability. A Generalization of Buffon's Needle Problem in, *Funkenbusch, William W.* 24 (1951) 245-248.
Probability. A Geometrical Approach to, *Brunk, H.D. and Gref, L.G.* 37 (1964) 287-296.
Probability. A Problem in Geometrical, *Langford, Eric.* 43 (1970) 237-244.
Probability. A Self-Defining Infinite Sequence, with an Application to

Markoff Chains and, *Nagel, Alexander.* 36 (1963) 179-183, 231-239.
Probability, and the Weierstrass Approximation Theorem. Coin Tossing, *Kuller, Rogert G.* 37 (1964) 262-265.
Probability. Definitions of, *Allen, Edward S.* 8 (1934) 132-135.
Probability Distributions and Their Associated Structures." Comment on the Paper "Some, *Carlitz, Leonard.* 37 (1964) 51-52.
Probability Distributions and Their Associated Structures. Some, *Dilley, Norman R.* 36 (1963) 175-179, 227-231; *Comment* 37 (1964) 51-52.
Probability. Elements of a Mathematical Theory of, *Curtiss, J.H.* 26 (1953) 233-254.
Probability Estimates From Contingency Tables. Some, *Smith, C.D.* 25 (1951) 59-62.
Probability for Certain Types of Emissions. A Postulational Treatment of the, *Kalinowski, Walbert C. and Regan, Francis.* 25 (1952) 175-181.
Probability Functions for Computations Involving More Than one Operation. *Locker, John L. and Perry, N.C.* 35 (1962) 87-89.
Probability Integral Transformation: A Simple Proof. The, *Schuster, Eugene F.* 49 (1976) 242-243.
Probability Model for Bertrand's Paradox. A New, *Funkenbusch, William W.* 35 (1962) 144.
Probability of More Heads. A, *Klamkin, Murray S.* 44 (1971) 146-149.
Probability. On Two New Chapters in the Theory of, *Fréchet, Maurice.* 22 (1948) 1-12.
Probability One]? Are Many 1-1 Functions on the [Infinite Set of] Positive Integers Onto [with, *Neuts, Marcel F.* 41 (1968) 103-109.
Probability Problem. A, *Sanders, S.T.* 7:5 (1933) 15-16.
Probability Problem? The Last Theorem of Fermat Not Only a Problem of Algebraic Analysis but Also, *Elston, Fred G.* 28 (1955) 150-152.
Probability that the Roots of a Real Quadratic Equation Lie Inside or on the Circumference of the Unit Circle in the Complex Plane. The, *Andrushkiw, Joseph W.* 32 (1959) 123-128.
Probability Theory and the Lebesgue Integral. *Botts, Truman.* 42 (1969) 105-111.
Probability Theory. Some Extremal Problems in Elementary, *Paul, Jerome L.* 47 (1974) 79-84.
Problem About Geodesics. A, *Amir-Moéz, Ali R.* 34 (1961) 211-213.
Problem Analysis [in Education]. The Graphic Method of, *Grehan, Carrie.* 4:1 (1929) 1-7.
Problem in Analytic Geometry. A, *Smith, H.L.* 3:2 (1928) 12-14.
Problem in Geometrical Probability. A, *Langford, Eric.* 43 (1970) 237-244.
Problem in Insurance. A, *Nichols, Irby C.* 4:8 (1930) 5-6.
Problem in Minimum Values. A, *Rickey, Frank A.* 13 (1939) 362-366.
Problem in Number Theory. On a, *Reich, Simeon.* 44 (1971) 277-278; *Comment* 48 (1975) 48.
Problem in Projective Geometry. A, *Zeigel, Marguerite.* 3:2 (1928) 4-5.
Problem in Relativity. A, *Rajagopal, A.K.* 34 (1960) 10.
Problem in the Computation of State and Federal Taxes. A, *Thomson, J.F.* 12 (1938) 380-383.
Problem in 2-Dimensional Heat Flow. A, *Schneider, W.J.* 40 (1967) 144-145.
Problem of Integration by Parts. On the, *Smith, C.D.* 3:3 (1928) 7-8.
Problem of Presentation in Trigonometry. A, *Karpinski, Louis C.* 13 (1939) 240-241.
Problem of Tangency. *O'Quinn, R.L.* 3:7 (1929) 20-22.
Problem of the Shortest Network Joining n Points. The, *DeMar, Richard F.* 41 (1968) 225-231.
Problem of Three Bodies in a Plane. On the, *Szebehely, Victor G.* 26 (1952) 59-66.
Problem of Three Desarguean Pairs of Triangles. A, *Hsu, Chen-Jung.* 40 (1967) 255-258.
Problem [on Integers] of Alan Sutcliffe. Note on a, *Kaczynski, T.J.* 41 (1968) 84-86.
Problem [on Sum of Squares]. Note on a, *Morris, Richard.* 7:3 (1932) 19-20.
Problem Solving [in Algebra]. *Webber, W. Paul.* 3:2 (1928) 6-8.
Problems. A Calculus for Know/Don't Know, *Austin, A.K.* 49 (1976) 12-14.
Problems. Certain, *Bruton, Gaston S.* 7:3 (1932) 14-19.
Problems. Counterfeit Coin, *Manvel, Bennet.* 50 (1977) 90-92.
Problems from the Field of Investment. *Nichols, Irby C.* 3:7 (1929) 14-17.
Problems in Gravitational Attraction. On Some, *Klamkin, Murray S.* 41 (1968) 130-132.
Problems of Interest in Applied Mathematics. Open, *Winthrop, Henry.* 37 (1964) 112-118.
Problems on Magic Squares. Two, *Agnew, Elizabeth H.* 44 (1971) 13-15.
Prodigies. Mathematical, *McCreery, Louis R.* 7:7 (1933) 4-12.
Producers in Cooperation and Competition. N, *Aucoin, A.A.* 11 (1937) 354-360.
Product: *see also* Inner.
Product. Invariance of Circle, *Amir-Moéz, Ali R.* 33 (1959) 35-38.

Product of Diagonal Elements of a Positive Matrix. On the, *Amir-Moéz, Ali R. and Johnston, G.E.* 42 (1969) 24-26.
Product of Norms of Orthogonal Vectors. On the, *Hyde, Beverly M.* 40 (1967) 141-143.
Product of Two Eulerian Polynomials. The, *Carlitz, Leonard.* 36 (1963) 37-41.
Product of Vectors in Four-Space. A Triple, *Williams, Michael Z. and Stein, F. Max.* 37 (1964) 230-235.
Product Tables. Triple, *Jacobson, R.A.* 38 (1965) 109.
Product. The Asymptotic Behavior of a Certain, *Liu, Ming-Chit.* 45 (1972) 85-88.
Products in Power-Law Devices. Modulation, *Kaufman, H.* 30 (1956) 9-17.
Products of Functions by R.W. Hakala, V. 27 (1953) 2. Remarks on the Integration of, *Spiegel, Murray H.* 28 (1954) 115-119.
Products of Functions. On Particular, *Labelle, Gilbert.* 35 (1962) 214.
Products of Sums of Powers. *Nathanson, Melvyn B.* 48 (1975) 112-113.
Products of Triangular Matrices. *Lehigh University Research Group.* 44 (1971) 276.
Professor Seidlin's Questionnaire on Mathematics Teaching. *Sanders, S.T.* 11 (1936) 2.
Programming: *see also* Dynamic, Integer, Linear.
Progression: *see also* Arithmetic.
Projectile. The Non-Euclidean, *Fulton, Curtis M.* 25 (1952) 143-146.
Projection. Curvilinear, *Amir-Moéz, Ali R.* 33 (1959) 103-104.
Projection in Vector Notation. The Stereographic, *Marcus, Curt F.* 39 (1966) 100-102.
Projection of a Vector on a Plane. The, *Pyle, H. Randolph.* 34 (1961) 195-197.
Projection of an Angle Upon a Plane. On the, *Rickey, F.A.* 11 (1937) 209-212.
Projection of Norm One may not Exist. A, *Goodner, Dwight B.* 37 (1964) 334-335.
Projection of Three Collinear Points Into Three Other Collinear Points. Note on the, *Wylie, C.R., Jr.* 13 (1939) 278-280.
Projection, Simplified. Oblique, *Shapiro, Isidor F.* 17 (1943) 177-179.
Projection with Respect to Normal Curves. On the Polar, *Inagaki, Masaru.* 31 (1958) 141-153.
Projective Geometry. *Coxeter, H.S.M.* 23 (1949) 79-97.
Projective Geometry. A Problem in, *Zeigel, Marguerite.* 3:2 (1928) 4-5.
Projective Geometry. Elements at Infinity in, *Court, Nathan Altshiller.* 19 (1944) 141-146.
Projective Geometry] of PG_7. A Geometric Proof of the Nonexistence of [the, *Heath, Steven H. and Wylie, C.R., Jr.* 43 (1970) 192-197.
Projective Methods in Euclidean Geometry. *Schuster, Seymour.* 36 (1963) 81-83.
Projectivities in $PG_{10}(nd)$. *Adamson, Steven and Wylie, C.R., Jr.* 45 (1972) 150-152.
Proof for Undergraduates. Methods of Mathematical, *Stark, Marion E.* 16 (1942) 350-351.
Proof. In Defense of the "Indirect," *Seidlin, Joseph.* 6:7 (1932) 4-17.
Proof of a Conjecture of R.C. and E.F. Buck. *Sholander, Marlow.* 24 (1950) 7-10.
Proof of Euler's Limit From a Well Known Physical Principle. A, *Shafer, Robert E.* 32 (1959) 211-212.
Proof of [Fermat's Last Theorem] for All Even Powers. *Becker, H.W.* 28 (1955) 297-298.
Proof of Fermat's Last Theorem for $n = 2(8a + 1)$. *Griselle, Thomas.* 26 (1953) 263.
Proof of Feuerbach's Theorem. A, *Venkatramaiah, S.* 38 (1965) 217-218.
Proof of Tepper's Factorial Conjecture. *Long, Calvin T.* 38 (1965) 304-305.
Proof [of the Arithmetic Mean-Geometric Mean Inequality] that Would Please N. D. Kazarinoff. A, *Ogilvy, C. Stanley.* 38 (1965) 110.
Proof of the Formula Representing the Logarithm as the Limit of a Sequence. A, *Matlak, R.F.* 39 (1966) 64-65.
Proof of the Impossibility of Trisecting an Angle with Euclidean Tools. *Chen, Tzer-Lin.* 39 (1966) 239-241.
Proof of the Moment-Area Theorem. A, *Hoyt, J.P.* 30 (1956) 95-97.
Proof of the Sufficiency Condition for Exact Differential Equations of the First Order. A, *Hellman, Morton J.* 37 (1964) 273.
Proof of the Theorem on the Intersection of the Medians of a Triangle. *Canady, E.F.* 21 (1948) 289.
Proof Schema for a Class of Theorems. A, *Rose, Gene F.* 25 (1951) 1-2.
Proof that all Even Perfect Numbers are of Euclid's Type. On the, *McDaniel, Wayne L.* 48 (1975) 107-108.
Proof that Not Both πe and $\pi+e$ Are Algebraic. A, *Brubaker, David A.* 44 (1971) 267.
Proof--What it Is and What it Should Be. A Mathematical, *Melter, Robert Alan.* 34 (1961) 407-409.
Proof without Words: A Truly Geometric Inequality. *Gallant, Charles.* 50 (1977) 98; *Comment* 50 (1977) 277.
Proof without Words: Cubes and Squares. *Love, J. Barry.* 50 (1977) 74.
Proofs of a Theorem on Quadrilateral. Some, *Tan, Kaidy.* 35 (1962) 289-294.

Proofs of the Fundamental Theorems of Spherical Trigonometry. *Clark, C.E.* 21 (1948) 151-155.
Proofs of Urysohn's Lemma and Related Theorems by Means of Zorn's Lemma. *Blair, Robert L.* 47 (1974) 71-78.
Propeller. The Asymmetric, *Bankoff, Leon, Erdös, Paul and Klamkin, Murray S.* 46 (1973) 270-272.
Properties of a Determinant Function. On the, *Bell, Clifford.* 10 (1936) 171-174.
Properties of a Game Based on Euclid's Algorithm. *Spitznagel, Edward L., Jr.* 46 (1973) 87-92.
Properties of the Complete Pentagon. *Bunch, William H.* 40 (1967) 132-140.
Properties of the Transpose Mapping. *Hill, Richard D. and Bernet, Glenn H., Jr.* 50 (1977) 151-152.
Properties Preserved by Continuous Functions. On, *Gemignani, Michael C.* 41 (1968) 181-183.
Property. Definition Versus, *Ransom, William R.* 41 (1968) 266-268.
Property of Logarithmic Spirals. On a, *Vinh, N.X. and Zirakzadeh, A.* 41 (1968) 26-28.
Property of the Laplacian of a Function in a Two Dimensional Bounded Domain, when the First Derivatives of the Function Vanish at the Boundary. On a, *De Fériet, J. Kampé.* 21 (1947) 74-79.
Property of the Zeros of a Polynomial. A, *Mandelbaum, Joseph and Schild, Albert.* 42 (1969) 247-248.
Property of Third Order Determinants. A, *Trigg, Charles W.* 35 (1962) 78.
Property of Third Order Gnomon-Magic Squares. A, *Trigg, Charles W.* 43 (1970) 70.
Proportion in High School Geometry. Introducing the Study of, *Rickey, F.A.* 6:5 (1932) 8-9.
Proportion With Some Applications. A Theorem on, *Smith, H.L.* 4:1 (1929) 20-22.
Proportional Metrics in N Variables. *Pyle, H. Randolph.* 32 (1959) 261-263.
Proposal for the Improvement of the Teaching of Mathematics. *Barnett, I.A.* 9 (1934) 74-81.
Pseudo-Multiplicative Functions. *Goldberg, Richard R.* 30 (1957) 145-148.
Pseudo-Rectangles. Notes on, *Allard, Jacques.* 38 (1965) 61-64.
Ptolemy's Inequality and the Chordal Metric. *Apostol, Tom M.* 40 (1967) 233-235.
Public Usefulness of Mathematics. The, *Hedrick, E.R.* 7:4 (1933) 1-5.
Pure Mathematics. Laplace's Contributions to, *Richeson, A.W.* 17 (1942) 73-78.
Pursuit Problem. A, *Crews, Clarence M.* 17 (1943) 245-247.
Pursuit Problem. A, *Crough, Gerald.* 44 (1971) 94-97.
Putnam Problem. A Generalization of a, *Clever, C.C. and Yocom, K.L.* 49 (1976) 135-136.
Puzzle and Some Generalizations. The No-Touch, *Cohoon, D.K.* 45 (1972) 261-265.
Puzzle]. "Eight Blocks to Madness"--A Logical Solution [to the, *Kahan, Steven.* 45 (1972) 57-65; *Sequel* 47 (1974) 115-124.
Puzzle. Some Generalizations of the 14-15, *Liebeck, Hans.* 44 (1971) 185-189.
Puzzle]. The Beauty, The Beast, and the Pond [: a, *Schuurman, W. and Lodder, J.* 47 (1974) 93-95.
Puzzles. An Analytic Method for the "Difficult Crossing," *Schwartz, Benjamin L.* 34 (1961) 187-193.
Puzzles. Dynamic Programming and "Difficult Crossing," *Bellman, Richard.* 35 (1962) 27-29.
Puzzles. Graphical Solution of Difficult Crossing, *Fraley, Robert, Cooke, Kenneth L. and Detrick, Peter.* 39 (1966) 151-157.
Puzzles. Solving Maze, *Kravitz, Sidney.* 38 (1965) 213-217.
Pythagoras, His Theorem and Some Gadgets. *Eaves, James Clifton.* 27 (1954) 161-167.
Pythagorean Numbers. A Systematic Method of Finding, *Goodrich, Merton Taylor.* 19 (1945) 395-397.
Pythagorean Numbers. Generalized, *Duncan, Dewey C.* 10 (1936) 209-211.
Pythagorean Numbers]. On Khazanov's Formulae [for, *Horadam, A.F.* 36 (1963) 219-220.
Pythagorean Principle. An Infinite Descent Method to Prove, *Gandhi, J.M.* 30 (1957) 250.
Pythagorean Principle and Calculus. *Caners, Leonard.* 28 (1955) 276; *Comments* 29 (1955) 40, 58; 29 (1956) 204-205.
Pythagorean Theorem. An Implication of the, *Jordan, John Q. and O'Malley, John M., Jr.* 43 (1970) 186-189.
Pythagorean Theorem]. Two Mathematical Papers Without Words [Trisecting an Angle, *Isaacs, Rufus.* 48 (1975) 198; *Comment* 49 (1976) 50-51.
Pythagorean] 3:4:5 Triangle. The Ubiquitous [, *Bankoff, Leon and Trigg, Charles W.* 47 (1974) 61-70.
Pythagorean Triples. A Generating Property of, *Arpaia, P.J.* 44 (1971) 26-27.

Q

Quadrangle bordé de triangles isoscelès semblables. *Thébault, Victor T.* 18 (1943) 7-13.
Quadrangle Inscribed in a Conic. On a Complete, *Cardoso, Jayme Machado.* 36 (1963) 190-191.

Quadrangle. On the Nine Point Conic Associated with a Complete, *Regan, Francis and Wilke, R.L.* 44 (1971) 261-266.
Quadratic and Cubic Equations. New Models for the Solution of, *Emch, Arnold.* 9 (1935) 162-164.
Quadratic Character of 2 mod p. The, *Williams, Kenneth S.* 49 (1976) 89-90.
Quadratic Equation Lie Inside or on the Circumference of the Unit Circle in the Complex Plane. The Probability that the Roots of a Real, *Andrushkiw, Joseph W.* 32 (1959) 123-128.
Quadratic Equation Obtained by the Aid of the Trigonometry. The Solutions of the, *Aude, H.T.R.* 13 (1938) 118-121.
Quadratic Equations in Engineering Problems. *Reese, Raymond C.* 18 (1943) 99-105.
Quadratic Form. The Minimum of a Real, Indefinite, Binary, *Pall, Gordon.* 21 (1948) 255.
Quadratic Forms. An Elementary Analysis of the Factorization of Integers and the Determination of Primes by the Use of Integral Binary, *Christilles, William Edward.* 36 (1963) 31-35; *Correction* 37 (1964) 32.
Quadratic Forms. On the Rational Congruence of Ternary, *Muwafi, Amin.* 37 (1964) 185-187.
Quadratic Formula. Note on the, *Smith, H. L.* 3:7 (1929) 19-20.
Quadratic Reciprocity. Primitive Roots without, *Wilansky, Albert.* 49 (1976) 146.
Quadratic Residues in Fields of Order p^2. The Distribution of, *Bergum, G.E. and Jordan, J.H.* 45 (1972) 194-200.
Quadratic Residues in Fields of Order p^2. The Distribution of, *Hardman, N.R. and Jordan, J.H.* 42 (1969) 12-17; *Comment* 44 (1971) 241; *Sequel* 45 (1972) 194-200.
Quadratic Residues in GF(p^2). *Giudici, Reinaldo E.* 44 (1971) 153-157.
Quadratic Residues. Theorems on, *Whiteman, Albert Leon.* 23 (1949) 71-74.
Quadratic Surds. Finding the Cube Root of Binomial, *Tan, Kaidy.* 39 (1966) 212-214.
Quadratics. An Integral Property of Cubics and, *Talbot, Walter R.* 37 (1964) 325.
Quadratics. Beyond, *Dorwart, Harold L.* 16 (1942) 231-237.
Quadratics, Cubics and Quartics. Graphical Solutions for Complex Roots of, *Yanosik, George A.* 17 (1943) 147-150.
Quadratics. On Simultaneous, *Smith, H.L.* 3:1 (1928) 16-18.
Quadraturen des Artus de Lionne. Ueber die [History of], *Hofmann, Josef Ehrenfried.* 12 (1938) 223-230.
Quadric Inversions. Vector Space Techniques in, *Amir-Moéz, Ali R.* 41 (1968) 86-88.
Quadric Surface. The Covariants of a, *Smith, H.L.* 10 (1936) 297-301.
Quadric Surfaces. Geometric Conjugate of a Point Relative to Central, *Gorowara, Krishan K.* 40 (1967) 260-263.
Quadric Surfaces. Matrices and, *Olmsted, John M.H.* 19 (1945) 267-275.
Quadric Surfaces. The Drawing of, *Little, Neil.* 14 (1940) 472-476.
Quadric. Use of Matrices for Study of Plane Sections of a, *Jones, Roger D.H.* 34 (1961) 337-339.
Quadrics. Parametrization of Certain, *Amir-Moéz, Ali R.* 39 (1966) 277-280.
Quadrilateral Inscribed in a Semicircle. Note on a, *Lewis, F.A.* 17 (1942) 70-71.
Quadrilateral. Some Proofs of a Theorem on, *Tan, Kaidy.* 35 (1962) 289-294.
Quadrilateral, The Complete, *Fettis, Henry E.* 22 (1948) 19-22.
Quadrilateral Theorem. Von Aubel's, *Kelly, Paul J.* 39 (1966) 35-37.
Quadrilaterals. A Note on Circumscriptible Cyclic, *Carlitz, Leonard.* 38 (1965) 33-35.
Qualifying Examination. The, *Roth, Richard.* 38 (1965) 166-167.
Quality Control. Statistical, *Howell, John M.* 25 (1952) 155-157.
Quantification of Greek Variables in Calculus. *McKee, Terry A.* 50 (1977) 27-29.
Quantities. On Physically Large and Small, *Maizlish, I.* 4:7 (1930) 22-24.
Quantum Mechanics. On a Certain Integral Arising in, *Buchanan, H.E.* 10 (1936) 247-248.
Quartic and Its Hessian, Note on the, *Ward, James A.* 17 (1943) 165-167.
Quartic Curve with Triple Point. On the Rational Plane, *Arnold, H.E. and Parente, A.R.* 14 (1939) 138-140.
Quartic Equation. On the Nature of the Roots of a, *Garver, Raymond.* 7:4 (1933) 6-8.
Quartic Equation. The Solution of a Certain, *Fisher, B.* 45 (1972) 97-98.
Quartic Equations and Tetrahedral Symmetries. *Chalkley, Roger.* 48 (1975) 211-215.
Quartic of Genus Two. The Plane, *Emch, Arnold.* 12 (1937) 5-12.
Quartic. On the Solution of the, *Packard, Robert W.* 39 (1966) 63.
Quartic. On the Solution of the Real, *Carpenter, William F.* 39 (1966) 28-30.
Quartics. Graphical Solutions for Complex Roots of Quadratics, Cubics and, *Yanosik, George A.* 17 (1943) 147-150.
Quartics. Some New Intrinsic Properties of Cubics and, *Franks, J. Russell.* 22 (1948) 73-76.
Quasi-Quasi Space [Satire]. On Some

π-Hedral Surfaces in, *Hopper, Claude.* 41 (1968) 89-90.
Quaternionic, Caley]. Imgainary Orders [Complex, *Shaw, James Byrnie.* 12 (1937) 63-76.
Quaternions. Hamilton's Discovery of, *van der Waerden, B.L.* 49 (1976) 227-234.
Queens [Chess] Problem. Constructions for the Solution of the m, *Hoffman, E.J., Loessi, J.C. and Moore, R.C.* 42 (1969) 66-72.
Queer Set of Equations. A, *Ransom, William R.* 22 (1949) 165.
Questionnaire on Mathematics Teaching. Professor Seidlin's, *Sanders, S.T.* 11 (1936) 2.
Questions and Opinions [in Education]. *Webber, W. Paul.* 4:7 (1930) 5-8.
Questions? Are There Any, *Tullier, Peter.* 14 (1940) 278.
Questions in Educating Mathematics Teachers for the Secondary School. *Olds, Edwin G.* 14 (1940) 271-277.
Quintic. Nomographic Solution of the, *Pettit, John T.* 21 (1948) 266.
Quotient: *see also* Difference, Newton.
Quotient Law of Tensors. A Remark on the, *Pan, T.K.* 28 (1955) 197-198.
Quotients. On the Differentiability of Indeterminate, *Schoenfeld, Lowell.* 41 (1968) 152-155.

R

Radical Axes Associated with the Circumcircle. Some, *Bailey, D. Moody.* 38 (1965) 199-205, 276-283; 39 (1966) 9-17.
Radical Axis of Two Circles. *Bailey, D. Moody.* 38 (1965) 44-45.
Radical Suggestion. A, *Dowling, Roy J.* 36 (1963) 59.
Rain, Reconsidered. Walking in the, *Schwartz, Benjamin L. and Deakin, Michael A.B.* 46 (1973) 272-276.
Rain. Walking in the, *Deakin, Michael A. B.* 45 (1972) 246-253; *Sequel* 46 (1973) 272-276.
Rainfall Occur? When Will the Next Record, *Barr, Donald R.* 45 (1972) 15-19.
Random Jottings From an Instructor's Notebook. *Read, Cecil B.* 18 (1944) 205-211.
Random Sieve. The, *Hawkins, David.* 31 (1957) 1-3.
Random Walk with Transition Probabilities That Depend on Direction of Motion. *Cohen, Leon.* 37 (1964) 248-250.
Rank and Column Rank of a Matrix. Row, *Andrea, Stephen A. and Wong, Edward T.* 34 (1960) 33-34.
Rank of a Matrix. On the, *Beesack, Paul R.* 35 (1962) 73-77.
Rank of a Matrix. On the, *Williams, V.C. and Cater, F.S.* 41 (1968) 249-250.
Rank of a Matrix. Test for the, *Brand, Louis.* 33 (1960) 277-278.
Rank. The Number of Square Matrices of a Fixed, *Verner, Lawrence.* 50 (1977) 95-96.
Rate of Change Concept for Solving Problems. An Elementary Approach to the Use of the, *Coffman, Raphael T.* 30 (1956) 81-90.
Rate of Interest Paid on a Certain Installment Purchase. *Nichols, Irby C.* 6:4 (1932) 14-16.
Ratio] f(n) = n/(n+1). A Geometric Application of [the, *Abeles, Francine.* 41 (1968) 259-260.
Ratio Test. A Note on a Form of, *Kung, S.H.L.* 41 (1968) 144-146.
Rational Approximations for Trigonometric Functions. *Cheney, Wm. Fitch, Jr.* 19 (1945) 341-342.
Rational Approximations of e. *Trigg, Charles W.* 35 (1962) 38, 54.
Rational Congruence of Ternary Quadratic Forms. On the, *Muwafi, Amin.* 37 (1964) 185-187.
Rational Forms] R(sinθ, cosθ). Integration of [the, *Byrne, William E.* 6:7 (1932) 27-30.
Rational Fractions Into Partial Fractions. Decomposition of, *Boldyreff, Alexander W.* 17 (1943) 261-267; *Reprinted (with examples)* 24 (1951) 139-146.
Rational Function of Trigonometric Functions and Quadratic Radicals. Note on the Integration of a, *Smith, H.L.* 6:3 (1931) 15-17.
Rational Function. The Partial Fraction Decomposition of a, *Hamilton, Hugh J.* 45 (1972) 117-119.
Rational Plane Cubic Curve. A Note on the, *Kraus, G.R. and Neelley, J.H.* 14 (1939) 134-137.
Rational Plane Quartic Curve with Triple Point. On the, *Arnold, H.E. and Parente, A.R.* 14 (1939) 138-140.
Rational Points Between 0 and 1. Enumeration of the, *Godfrey, Edwin L.* 12 (1938) 163-166.
Rational Polygons. On Approximating Polygons by, *Sheng, T.K. and Daykin, D.E.* 39 (1966) 299-300.
Rational Space C_n. A Birational T_{n+2} Associated with a, *Vest, M.L.* 16 (1942) 377-380.
Rational Triangles and Parallelograms. *Daykin, D.E.* 38 (1965) 46-47.
Rationality. A Note on the Nets of, *Czarnecki, Adam Z.* 41 (1968) 242-244.
Ratios. Applications of Unity, *Luter, J. G.* 33 (1959) 30-32.
Ratios of Positive Integers. Approximations to Incommensurable Numbers by, *Thomas, Paul D.* 36 (1963) 281-289.
Ratios. On Pedal, *Bailey, D. Moody.* 38 (1965) 128-130.

Real Case. The General Cayley-Hamilton Theorem via the Easiest, *Smith, J. Dermead.* 48 (1975) 232-233.
Real Functions. A Characterization of Continuous Closed, *Espelie, M. Solveig and Joseph, James E.* 45 (1972) 200-201.
Real-Life Application of Mathematical Symbolism [Satire]. A, *Redheffer, R.M.* 38 (1965) 103-104.
Real Line. A Generalization of Krasnoselski's Theorem on the, *Hillam, Bruce P.* 48 (1975) 167-168.
Real Line. The Cross Ratio on the, *Whitehead, Earl Glen, Jr.* 42 (1969) 193-195.
Real Number System. On the Construction of the, *Moran, W. and Pym, J.S.* 43 (1970) 257-259.
Real Numbers. Completeness of the, *Goffman, Casper.* 47 (1974) 1-8.
Real Numbers for Freshmen. *Litzinger, Marie.* 22 (1949) 263-264.
Real Solutions of Classes of Polynomial Equations. *Jackson, Stanley B.* 42 (1969) 128-132.
Real Solutions of [the Equation] $x^y = y^x$. The, *Beardon, A.F.* 39 (1966) 108-111.
Real-Valued Functions. On Conditions Implying Continuity of, *Dickman, R.F., Jr.* 45 (1972) 201-204.
Real Variable. The Theory of Functions of a, *Green, John W.* 24 (1951) 209-217.
Realistic View of Differential Calculus. A, *Sullivan, Sister Helen.* 24 (1951) 162-165.
Reality: A Classic View. Mathematics and, *Glenn, Oliver E.* 30 (1957) 117-126.
Reality: A Modern View. Mathematics and, *Miller, Hugh.* 30 (1957) 127-133.
Reasoning Problems [Education]. Children's Difficulties with, *Roca, Lolita.* 5:1 (1930) 3-11.
Receding Galaxies. *Burton, Lindley J.* 33 (1960) 161.
Recent Developments in Geometry [i.e., Topology]. On, *Smith, C.D.* 5:7 (1931) 23-27.
Reciprocal Equations. On a Substitution Made in Solving, *Singer, Arnold.* 38 (1965) 212.
Reciprocals. Expressing One as a Sum of Odd, *Barbeau, E.J.* 49 (1976) 34; *Comment* 49 (1976) 103, 155-156.
Recollections and Reflections. *Wilder, R. L.* 46 (1973) 177-182.
Recommendations for the Pre-Training of Aviation Cadets. Air Corps, *Hart, William L.* 16 (1942) 364-367.
Reconstruction of Matrices. On, *Manvel, Bennet and Stockmeyer, Paul K.* 44 (1971) 218-221.
Recreation [: Bridge]. A Mathematical, *Sanders, S.T., Jr.* 5:7 (1931) 27-30.
Rectangle. Separating Points in a, *Schwartz, Benjamin L.* 46 (1973) 62-70.
Rectangles. Notes on Pseudo-, *Allard, Jacques.* 38 (1965) 61-64.
Rectangles. The Lattice Point Covering Theorem for, *Niven, Ivan and Zuckerman, Herbert S.* 42 (1969) 85-86.
Rectangular Region Which Has the Lattice Point Covering Property. On the Minimal, *Maier, E.A.* 42 (1969) 84-85.
Rectifiable Curves Are of Zero Content. *Burckel, R.B. and Goffman, Casper.* 44 (1971) 179-180.
Rectification of the Hyperbola. The, *Gwinner, Harry.* 8 (1933) 61-62.
Rectified Equality. A, *Trigg, Charles W.* 34 (1961) 163-164.
Rectifying Curve. The, *Mather, Roy A.* 14 (1940) 449-454.
Recurrence Formula Solution to [the Diophantine Equation] $dy^2 + 1 = x^2$. A, *Deemer, Bob.* 32 (1958) 37-40.
Recurrence Related to $\sqrt{2}$. Note on a Nonlinear, *Graham, R.L. and Pollak, H.O.* 43 (1970) 143-145.
Recurrent Sequences and Pascal's Triangle. *Green, Thomas M.* 41 (1968) 13-21.
Recursive Formula for the Number of Partitions of an Integer N Into m Unequal Integral Parts. A, *Konečný, Václav.* 45 (1972) 91-94.
Redundancy? How Much, *Stein, F. Max.* 37 (1964) 344-345.
Reference Triangle" for Hyperbolic Functions. A ", *van Voorhis, W.* 29 (1956) 157-158.
Reflection Property" of the Conics. The ", *Coffman, Raphael T. and Ogilvy, S. C.* 36 (1963) 11-12.
Reflections of a College Teacher on Mathematics in the High School. *Langer, Rudolph E.* 10 (1935) 35-43.
Reflections on Pure Geometry. *Court, Nathan Altshiller.* 37 (1964) 337-339.
Reflections on the Study of Geometry as an Aid to Logical Thinking. *Rickey, F.A.* 6:2 (1931) 12-15.
Reflections. Recollections and, *Wilder, R.L.* 46 (1973) 177-182.
Reflective Approach in the Teaching of Mathematics. A, *Johnson, Charles A.* 26 (1952) 35-38.
Reflective Geometry of the Brocard Points. *Bailey, D. Moody.* 36 (1963) 162-175.
Reflective Geometry of the Triangle. Some, *Bailey, D. Moody.* 33 (1960) 241-259.
Reflexive Relations. The Algebra of, *Parker, F.D.* 44 (1971) 70-77.
Regions and their "Patterns" in Conformal Mapping. *Miser, Hugh J.* 16 (1942) 333-337.
Regions Determined by a Convex Polygon. The Number of, *Freeman, J.W.* 49 (1976) 23-25.
Regression Systems of Sums with Elements in Common Be Linear. Necessary and Sufficient Conditions That, *Wei, Dzung-Shu.* 17 (1943) 151-158.

Rejected Papers of Three Famous Mathematicians. *Emch, Arnold.* 11 (1937) 186-189.
Related Circles. *Bankoff, Leon.* 35 (1962) 90.
Relation Between Correlation and Eccentricity. *Bleick, W.E.* 43 (1970) 149-150.
Relation Between the Beta and the Gamma Functions. *Konnully, Augustine O.* 41 (1968) 37-39.
Relation, Congruence, Modulo M. Some Elementary Properties of the, *Diamond, Louis E.* 28 (1955) 213-220; *Comment* 29 (1956) 206-207.
Relation of [the Derivatives] $f'_+(a)$ to $f'(a+)$. The, *Langlois, W.E. and Holder, L.I.* 39 (1966) 112-120.
Relations, and Graphs. Matrices, *Parker, F.D.* 34 (1960) 5-9.
Relations as Boolean Matrices. Binary, *Feichtinger, Oskar and McAllister, Byron L.* 43 (1970) 8-14.
Relations. Convex Solutions of Implicit, *Brock, William A. and Thompson, Russell G.* 39 (1966) 208-211.
Relations Involving Special Functions. Some, *Deverall, L.I. and Thorne, C.J.* 25 (1952) 183-188.
Relations Involving the Finite Harmonic Series. Some, *Gould, H.W.* 34 (1961) 317-321.
Relations. Subgroups and Equivalence, *Malraison, Pierre J., Jr.* 50 (1977) 205-208.
Relations. The Algebra of Reflexive. *Parker, F.D.* 44 (1971) 70-77.
Relationship Between an Integer and the One with the Reversed Order of Digits. A, *Hickerson, Dean R.* 47 (1974) 36-39.
Relative Primality. *Sanders, S.T.* 5:3 (1930) 18-24.
Relatively Prime Amicable Numbers of Opposite Parity. *Hagis, Peter, Jr.* 43 (1970) 14-20.
Relatively Prime Amicable Numbers. On the Number of Prime Factors of a Pair of, *Hagis, Peter, Jr.* 48 (1975) 263-266.
Relatively Prime Amicable Numbers with Twenty-One Prime Divisors. *Hagis, Peter, Jr.* 45 (1972) 21-26.
Relatively Prime Integers. Arithmetic Progressions of N, *Matlin, Sam.* 34 (1960) 29-30.
Relatively Prime Integers. On Almost, *Stein, Alan H.* 48 (1975) 169-170.
Relativity. *Hoffmann, B.* 14 (1939) 5-25.
Relativity. A Problem in, *Rajagopal, A. K.* 34 (1960) 10.
Relativity. Conjugate Diameters and the Special Theory of, *Wrede, Robert C.* 42 (1969) 227-232.
Relaxation Difficulty. A, *Ransom, William R.* 36 (1963) 257.
Relaxation Methods [in Differential Equations]. *Squire, William.* 33 (1960) 177-183.
Remainder Function. Test for Divisibility by the Use of a, *Draim, N.A.* 31 (1958) 137-140.
Remainder Theorem. Divisibility Rules by the, *Gaskell, Robert W.* 8 (1934) 81-86.
Remarkable Group of Antimagic Squares. A, *Trigg, Charles W.* 44 (1971) 13.
Remedial Reading in College Mathematics. *O'Toole, A.L.* 14 (1940) 329-344.
Report of the Mathematics Committee of the California Junior College Association. A, *Seidlin, Joseph.* 11 (1937) 385-389.
Report on Present Tendencies in the Development of Mathematical Teaching in Japan, by M. Kuniyeda. A, *Seidlin, Joseph.* 11 (1937) 231-240.
Representation by a Cube. On, *Hunter, J. A.H.* 36 (1963) 129.
Representation Formula for the Solutions of the Second Order Linear Differential Equation. A, *Pellicciaro, E.J.* 43 (1970) 77-80.
Representation of a Gaussian Integer as a Sum of Two Squares. The, *Mordell, L.J.* 40 (1967) 209.
Representation of a Possible Solution Set of Fermat's Last Theorem. On the, *Mifsud, Charles J.* 48 (1975) 174-176.
Representation of Certain Integer Powers. A, *Bell, E.T.* 20 (1945) 3-4.
Representation of Elements in Separable Banach Spaces. Series, *Hansen, Robert C.* 45 (1972) 190-194.
Representation of Groups. On Topological, *Pitcairn, Joel.* 27 (1953) 92.
Representation of Integers in Forms. The, *Hull, Ralph.* 14 (1940) 235-252.
Representation of Integers. On the, *Lee, William Y.* 47 (1974) 150-152.
Representation of n^r by n^p Consecutive Gnomons. *Parker, Russell V.* 34 (1960) 101-103.
Representation of the Commutator Subgroup. A, *Yff, Peter.* 29 (1956) 161.
Representation of the Newtonian Difference Quotients and Their Applications--An Abstract. On a, *Tchakaloff, L.* 11 (1937) 183-184.
Representation of Unitary Matrices. The Exponential, *Rinehart, R.F.* 37 (1964) 111-112.
Representation Problem. A, *Stanton, R.G.* 43 (1970) 130-137.
Representations. Graphical Group, *Maxfield, John E.* 27 (1954) 169-174.
Representations of Abstract Groups as Groups of Motions. A Note on, *Melter, Robert Alan.* 37 (1964) 330-331.
Representations of Groups. On Metric, *Ellis, David.* 26 (1953) 183-184.
Representations of Positive Integers as Sums of Arithmetic Progressions.

Andrushkiw, Joseph W., Andrushkiw, Roman I. and Corzatt, Clifton E. 49 (1976) 245-248.
Representing an Integer as the Harmonic Mean of Integers. On, *Golomb, Solomon W.* 46 (1973) 241-244; *Comment* 47 (1974) 234.
Representing Integers as Sums of Odd Composite Integers. On, *Vaidya, A.M.* 48 (1975) 221-223.
Representing Numbers Using Only One 4. *Knuth, Donald E.* 37 (1964) 308-310.
Requirements and Their Effect Upon Mathematics in the High School. Entrance, *Sleight, E.R.* 10 (1936) 241-246.
Research and the Mathematician. *Christilles, William Edward.* 36 (1963) 121-122.
Research. Difficulties in Proposing Undergraduate, *Brendan, Brother T.* 35 (1962) 297-299.
Research Workers. The Early Training of Mathematical, *Sawyer, W.W.* 25 (1952) 226-228.
Residue: *see also* Quadratic.
Residue Systems in the Gaussian Integers. Complete, *Jordan, J.H. and Potratz, C. J.* 38 (1965) 1-12.
Residue Theorem. Summation of Series by the, *Ricardo, Henry J.* 44 (1971) 24-26.
Residues in $Z(\sqrt{-2})$. Covering Classes of, *Jordan, J.H. and Schneider, D.G.* 44 (1971) 257-261.
Resistance Circuits and Things Synthesized by Number Theory. *Benson, Arne.* 34 (1961) 125-130; *Comment* 34 (1961) 233.
Resistance of Ships. Some Definite Integrals Occurring in Havelock's Work on the, *Bateman, H.* 23 (1949) 1-4.
Resistance of Ships. The, *Bateman, H.* 16 (1941) 79-88.
Resultants and Symmetric Functions. *Sisam, C.H.* 9 (1934) 46-52.
Results Pertaining to Fermat's Conjecture. Some, *Simmons, G.J.* 39 (1966) 18-21.
Retrieval. Information, *Lamperti, John.* 26 (1953) 228-229.
Reversal-Addition. A Note on Palindromes by, *Rebmann, Michael T. and Sentyrz, Frank, Jr.* 45 (1972) 186-187.
Reversal-Addition. More on Palindromes by, *Trigg, Charles W.* 45 (1972) 184-186.
Reversed. Integers That are Multiplied When Their Digits are, *Sutcliffe, Alan* 39 (1966) 282-287; *Sequels* 41 (1968) 84-86; 43 (1970) 89-92.
Reversed Order of Digits. A Relationship Between an Integer and the One with the, *Hickerson, Dean R.* 47 (1974) 36-39.
Reversing of Digits. On the, *Klosinski, Leonard F. and Smolarski, Dennis C.* 42 (1969) 208-210.
Revolution. A Solid of, *Ward, James A.* 19 (1944) 111-118.
Revolution. On Ruled and Developable Surfaces of, *Klamkin, Murray S.* 27 (1954) 207-209.
Rhymes. Rooks and, *Becker, H.W.* 22 (1948) 23-26.
Rhyming Sequences. A Binomial Identity Related to, *Levine, Jack.* 32 (1958) 71-74.
Riccati Differential Equation. Methods of Solution of the, *Haaheim, D. Robert and Stein, F. Max.* 42 (1969) 233-240.
Riccati Differential Equation. On the Separability of the, *Siller, Harry.* 43 (1970) 197-202.
Riccati Differential Equations. On Solutions of Certain, *Wong, James S.W.* 39 (1966) 141-143.
Riemann Integrals as Mappings in Elementary Applications. *Pursell, Lyle E.* 37 (1964) 311-317.
Rietz, 1875-1943. [Obituary:] Henry Lewis, *Smith, C.D.* 18 (1944) 182-184.
Riffling Casino Checks. *Gardner, Martin J. and McMahan, C.A.* 50 (1977) 38-41.
Right Triangles. A Chart of Integral, *Ross, W. Bruce.* 23 (1949) 110-114.
Rigid Body. On the Motion of a, *Poor, Vincent C.* 19 (1945) 391-394.
Rigid Body Rotation. More on Vector Representation of, *Hickey, Harry W.* 43 (1970) 38-39.
Rigid Body Rotation. On Vector Representation of, *Wong, James S.W.* 41 (1968) 28-29; *Comment* 43 (1970) 38-39.
Rigidity Restrictions on Analytic Loci. *Thomas, Paul D.* 22 (1948) 109-110.
Ring] GF[q,x]. A Note on Sums of Three Squares in [the, *Carlitz, Leonard.* 48 (1975) 109-110.
Ring That is Not a Euclidean Ring. A Principal Ideal, *Wilson, Jack C.* 46 (1973) 34-38.
Rings. A Note on Finite Boolean, *Smithson, R.E.* 37 (1964) 325-327.
Rings. A Note on p-Like, *Yaqub, Adil.* 33 (1960) 287-290.
Rings]. Functions of a Dual or Duo Variable [Analysis over Complex-like, *Deakin, Michael A.B.* 39 (1966) 215-219.
Rings] is -1 a Power of 2? When [in what, *Siu, Man-Keung.* 48 (1975) 284-286; *Comment* 49 (1976) 156-157.
Rings. Notes on Semi, *Hooi-Tong, Loh.* 40 (1967) 150-152.
Rings. On Finite, *Peinado, Rolando E.* 40 (1967) 83-85; *Addendum* 40 (1967) 216.
Rings [Satire]. Confusion, *Matthews, G.* 33 (1960) 282.
Rings. Symmetric Groupoids and, *Duncan, R.L. and Duncan, Hilda F.* 44 (1971) 127-133.
Rings whose Ideals form a Chain. *Hill, E. T.* 47 (1974) 97-98.
Risk. Optimal Investment Under, *Gallin,*

Daniel and Shapiro, Edwin. 49 (1976) 235-238.
Road Intersection. Formulas for a Curved, *Hickerson, T.F.* 36 (1963) 245-246.
Rockers and Rollers [Curves]. *Robison, Gerson B.* 33 (1960) 139-144.
Rolle's Property and the Mean Value Property for Derivatives. A Note on Complex Polynomials Having, *Dotson, W.G., Jr.* 41 (1968) 140-144.
Roman Numerals. Note on, *Shaw, Allen A.* 13 (1938) 127-128.
Rooks and Rhymes. *Becker, H.W.* 22 (1948) 23-26.
Root: *see also* Square.
Root. An Approximation for any Positive Integral, *Taylor, Gerald D.* 35 (1962) 107-108; *Sequel* 37 (1964) 187-192.
Root." An Extension of "An Approximation for any Positive Integral, *Romer, Eugene M.* 37 (1964) 187-192.
Root Approximation. On, *Smith, H.L.* 17 (1943) 312-314.
Root Isolation Through Curve Analysis. *Kennedy, E.C.* 14 (1940) 373-378.
Root of a Number. An Iterative Approximation for Finding the N-th, *Gould, H.W.* 33 (1959) 61-69.
Root of a Number by Iteration. Finding the Nth, *Laufer, Henry.* 36 (1963) 157-162; *Comment* 36 (1963) 315-316.
Root. On a Certain Cube, *Carlson, C.S.* 11 (1937) 333.
Root Powering. Equations Invariant under, *Finan, E.J. and McRae, V.V.* 21 (1947) 29-34.
Roots. A Determinant Formula for Higher Order Approximation of, *Wolfe, J.M.* 31 (1958) 197-199.
Roots. A Note on Primitive, *Baum, John D.* 38 (1965) 12-14.
Roots by Means of Lower Degree Equations. Evaluation of Real, *James, Glenn.* 19 (1945) 375-384.
Roots by the Newton-Raphson Method. New Criteria for Accuracy in Approximating Real, *Pawley, Myron G.* 15 (1940) 111-120.
Roots. Graphical Representation of Complex, *Ward, James A.* 11 (1937) 297-303.
Roots of a Cubic. A Graphical Determination of the Nature of the, *Hellman, Morton J.* 34 (1961) 221-222.
Roots of a Cubic. A Graphical Solution for the Complex, *Yanosik, George A.* 10 (1936) 139-140.
Roots of a Cubic and Those of its Derivative. On the, *Garver, Raymond.* 6:7 (1932) 24-27.
Roots of a Polynomial as Functions of the Coefficients. The Analyticity of the, *Brillinger, David R.* 39 (1966) 145-147.
Roots of a Polynomial. Bounds on the, *Hearon, John Z.* 49 (1976) 240-242.
Roots of a Quartic Equation. On the Nature of the, *Garver, Raymond.* 7:4 (1933) 6-8.
Roots of a Real Quadratic Equation Lie Inside or on the Circumference of the Unit Circle in the Complex Plane. The Probability that the, *Andrushkiw, Joseph W.* 32 (1959) 123-128.
Roots of an Equation by Iteration. On Approximating the, *Hines, Jerome.* 24 (1951) 123-127.
Roots of Cubic Equations by Using the Slide Rule. A Method for Finding the Real, *Pennisi, Louis L.* 31 (1958) 211-214; *Comment* 32 (1958) 41-43.
Roots of Equations by Simple Continued Fractions. The Approximation of Real, *Garver, Raymond.* 7:2 (1932) 20-22.
Roots of Matric Equations. *Feld, J.M.* 10 (1935) 96-98.
Roots of Order n. Square Roots by an Iterative Method and Its Generalization to Positive Integral, *Bauerochse, Tom R.G.* 39 (1966) 219-223.
Roots of Perfect Numbers. On the Digital, *Brooke, Maxey.* 34 (1960) 100, 124; *Comment* 35 (1962) 45-46.
Roots of Positive Integers. A Simple Irrationality Proof for nth, *Lange, L. J.* 42 (1969) 242-243.
Roots of Unity. On, *Shover, Grace.* 15 (1941) 232-233.
Roots. Sturm's Theorem for Multiple, *Thomas, Joseph Miller.* 15 (1941) 391-394.
Roots without Quadratic Reciprocity. Primitive, *Wilansky, Albert.* 49 (1976) 146.
Rotary Engine Geometry. *Nash, David H.* 50 (1977) 87-89.
Rotating" Ellipses Inside Triangles. On ", *Evans, Leonard.* 44 (1971) 28-33.
Rotation Invariant. Subadditivity is a, *Laatsch, Richard G.* 37 (1964) 195-196.
Rotation. More on Vector Representation of Rigid Body, *Hickey, Harry W.* 43 (1970) 38-39.
Rotation of Axes. A Note on the, *Hagis, Peter, Jr.* 36 (1963) 127-128.
Rotation. On Vector Representation of Rigid Body, *Wong, James S.W.* 41 (1968) 28-29; *Comment* 43 (1970) 38-39.
Rotation. Simplification by, *Steen, F.H.* 15 (1941) 369-374.
Rotation. The Straight Line Treated by Translation and, *May, Kenneth O.* 22 (1949) 211.
Rotation Via Partial Derivatives. Axis, *Hagis, Peter, Jr.* 43 (1970) 211-212.
Rotational Operator of Third Order Periodicity. A Non-, *Soble, A.B.* 14 (1940) 443-444.
Roulettes and Glissettes. The Theory of, *Walker, Gordon.* 13 (1939) 223-229.
Roulettes. Conical, *Johnson, R.P.* 17 (1943) 202-211.

Roulettes. The General Theory of, *Walker, Gordon.* 12 (1937) 21-26.
Round Pegs in Square Holes and Square Pegs in Round Holes. On, *Singmaster, David.* 37 (1964) 335-337.
Round-Robin. The Mathematics of the, *Winthrop, Henry.* 39 (1966) 22-28.
Round Table on Fermat's Last Theorem. *Grey, L.D.* 27 (1954) 274-277.
Round Table on Fermat's Last Theorem [Part I]. *Heimann, Phil Heinrich and Elston, Fred G.* 28 (1954) 49-50.
Round Table on Fermat's Last Theorem [Part II]. *Stone, D.E.* 28 (1955) 295-296; *Comment* 29 (1956) 123-124.
Routh's Theorem. A New Proof of, *Niven, Ivan.* 49 (1976) 25-27.
Row Rank and Column Rank of a Matrix. *Andrea, Stephen A. and Wong, Edward T.* 34 (1960) 33-34.
Ruin Problem. A, *Råde, Lennart.* 49 (1976) 15-18.
Ruin Problem. Conditional Expectation of the Duration in the Classical, *Stern, Frederick.* 48 (1975) 200-203.
Ruin Problem with Equal Initial Fortunes. The Classical, *Samuels, S.M.* 48 (1975) 286-288.
Ruin Problems. Symmetries for Conditioned, *Beyer, W.A. and Waterman, M.S.* 50 (1977) 42-45.
Rule: *see also* Cramer's, Slide.
Rule of Double False. The, *Bowie, Harold E.* 26 (1953) 269-272.
Ruled and Developable Surfaces of Revolution. On, *Klamkin, Murray S.* 27 (1954) 207-209.
Ruled Surfaces. Two Groups Associated with, *Sweet, Frank H.* 39 (1966) 205-208.
Ruler and Compass. A Method for the Point by Point Construction of Central Conics by, *Harper, Floyd S.* 21 (1947) 55-57.
Ruler and Compass Mapping Problem Associated with the Equilateral Triangle. A, *Hinrichsen, J.J.L.* 14 (1939) 141-143.
Ruler Only. A Construction by, *Bhaskaranandha, C.N.* 35 (1962) 103-104.
Ruler, the Marked Ruler and the Carpenter's Square. The Angle, *Yates, Robert C.* 15 (1940) 61-73.
Ruler. Two Constructions With a Two-Edged, *Olivier, Donald.* 36 (1963) 24.
Russell's Introduction to Mathematical Philosophy. On the First Two Chapters of, *Sanders, S.T.* 6:1 (1931) 18-21.

S

Sales Tax" Theorem. The ", *Golomb, Solomon W.* 49 (1976) 187-189.
SAM [Subadditive Multiplicative] Functions. *Hall, Wayne and Hight, Donald W.* 41 (1968) 63-66.
Sampling by Attributes. IV: Acceptance Sampling by Variables. Statistical Decision Procedures in Industry. I: Control Charts by Variables. II: Control Charts by Attributes. III: Acceptance, *Coleman, Edward P.* (I), *Gold, Ben K.* (II), *Howell, John M.* (III) *and Moan, O.B.* (IV). 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Sanders 1872-1970. In Memoriam Samuel T., *Mulcrone, T.F.* 43 (1970) 175-177.
Satellite Mechanics. *Hoggatt, Verner E., Jr.* 34 (1961) 249-257.
Satire]. A Correction and Generalization of Neustadt's Law [, *Funkenbusch, William W.* 31 (1958) 159-161.
Satire]. A Further Generalization of Neustadt's Law [, *Bergman, George M.* 32 (1959) 271-274.
Satire]. A Mathematical Munchausen [I. Neustadt..., *Schillo, Paul.* 30 (1956) 55-61; *Comments* 31 (1958) 159-161; 32 (1959) 271-274.
Satire]. A Real-Life Application of Mathematical Symbolism [, *Redheffer, R. M.* 38 (1965) 103-104.
Satire]. Confusion Rings [, *Matthews, G.* 33 (1960) 282.
Satire]. On Some π-Hedral Surfaces in Quasi-Quasi Space [, *Hopper, Claude.* 41 (1968) 89-90.
Satire]. The Modern Mathematical Approach to LR^2H [, *Rinehart, R.F.* 32 (1959) 151-152.
Satire]. The Schnitzelbank School of Mathematical Pedagogy (A How-to-do-it Manual) [, *Fedëp, Ya. I.M.* 34 (1961) 340-343.
Satire]. The Story of $(BGG)_i (i = 1,2,3)$ [, *Williams, Leland H.* 35 (1962) 228.
Saving Time in Calculating Actual Interest from Interest Tables. *Nichols, Irby C.* 7:4 (1933) 5-6.
Savings Account Annuities. *Osborn, Roger.* 30 (1956) 25-28.
Scales [Bases]. The Number System in More General, *Alder, Henry L.* 35 (1962) 145-151.
Scales of the Slide Rule. The Log Log, *Eagle, Edwin L.* 25 (1951) 101-104.
Schemmel. A Theorem of, *Carlitz, Leonard.* 39 (1966) 86-87.
Schnitzelbank School of Mathematical Pedagogy (A How-to-do-it Manual) [Satire]. The, *Fedëp, Ya. I.M.* 34 (1961) 340-343.
Scholar's Arithmetic. The, *Sleight, E.R.* 10 (1936) 193-199.
Schools of This Country. The Place of Mathematics and its Teaching in the, *Seidlin, Joseph.* 10 (1936) 304-307; 11 (1936) 24-45, 147-151.
Schwarz Differentiability and Differentiability. *Reich, Simeon.* 44 (1971) 214-216.

Schwarz's Inequality. On, *Goldberg, Seymour.* 35 (1962) 300-301.
Schwarz's Inequality to Curve Fitting. An Application of, *Thoro, Dmitri.* 35 (1962) 12.
Science and Learning. Copernicus, Representative of Polish, *Karpinski, Louis C.* 19 (1945) 343-348.
Science and Logic. *Phipps, Cecil G.* 36 (1963) 289-294.
Science Congress, Prague, Sept. 22-27, 1937. The Fourth International History of, *Jelitai, József.* 12 (1937) 77-81.
Science. Don't Call it, *Foster, James E.* 26 (1953) 209-214; *Reply* 27 (1953) 43-45.
Science, History, Art and Mathematics. A Discussion of the Methods of, *Miller, Walter M.* 10 (1936) 200-204.
Science in Multiplying Fractions. *Smith, C.D.* 3:8 (1929) 8-10.
Science in the Modern World. *Morse, Marston.* 28 (1955) 209-211.
Science? Is Mathematics an Exact, *Read, Cecil B.* 17 (1943) 174-176.
Science. Mathematics and the Hypotheses of, *Ettlinger, H.J.* 11 (1936) 71-77.
Science. Mathematics As An Experimental, *Ettlinger, H.J.* 10 (1935) 3-8.
Science of Education Proposed. A, *Webber, W. Paul.* 8 (1934) 125-128.
Science Through Student Activities. Coordination of Mathematics and, *Kormes, J.P.* 20 (1945) 86-90.
Scientific Exposition. Some General Remarks Concerning, *Langer, Rudolph E.* 9 (1934) 12-18, 42-46.
Scotland Before the Eighteenth Century. [Development of] Mathematics in, *Sleight, E.R.* 18 (1944) 305-314.
Scotland, 1669-1746. Development of Mathematics in, *Sleight, E.R.* 19 (1945) 173-185.
Search for Finite Simple Groups. The, *Gallian, Joseph A.* 49 (1976) 163-180.
Search Theory: A Mathematical Theory for Finding Lost Objects. *Stone, Lawrence D.* 50 (1977) 248-256.
$\sec^3 x\, dx$. [The Integral] $\int$, *Konhauser, Joseph D.E.* 38 (1965) 45.
Sec x. Integrating Odd Powers of, *Parker, W. Vann.* 10 (1936) 294-296.
$\sec \theta d\theta$. A Different Technique for the Evaluation of [the Integral] $\int$, *Whyburn, Clifton T.* 42 (1969) 113.
Second Degree Equation in Two Variables. A Complete Set of Coefficient Functions for the, *Stark, J.M.* 37 (1964) 253-261.
Second Degree. The General Equation of the, *Williams, K.P.* 16 (1941) 37-43.
Second Lesson in the History of Mathematics. A, *Miller, G.A.* 14 (1939) 144-152.
Second Order Perimeter-Magic and Perimeter-Antimagic Cubes. *Trigg, Charles W.* 47 (1974) 95-97.
Secondary Mathematics. Developments in, *Smith, C.D.* 5:4 (1930) 4-8.
Secondary Mathematics in the United States. Analysis and Interpretation of Survey of Present Status of, *Seidlin, Joseph.* 9 (1935) 143-146.
Secondary Mathematics in the United States. Survey of Present Status of, *Sanders, S.T.* 9 (1934) 3-9, 35-42.
Secondary Mathematics Situation. Some Comments on the, *Sisam, C.H.* 10 (1935) 25-27.
Secondary School Mathematics. Correlation and, *Reeve, W.D.* 9 (1934) 10-12.
Secondary School Mathematics. Trends in the Teaching of, *Bennett, Albert A.* 18 (1944) 315-322.
Secondary School. Questions in Educating Mathematics Teachers for the, *Olds, Edwin G.* 14 (1940) 271-277.
Section: *see also* Conic.
Section of the Torus. On a Particular Plane, *Konhauser, Joseph D.E.* 38 (1965) 161.
Sectioning Students on the Basis of Ability. *Wood, Frederick.* 11 (1937) 191-194.
Sections of a Quadric. Use of Matrices for Study of Plane, *Jones, Roger D.H.* 34 (1961) 337-339.
Sections of n-Dimensional Spherical Cones. *Keyton, Nancy.* 42 (1969) 80-83.
Securities. The Evolution of, *Forno, Dora M.* 5:5 (1931) 12-14.
Segment-Functions. *Freund, John E.* 21 (1948) 261-264.
Segment-Generated Sets of Points in Regions of a Plane. A Doodling Problem Involving the Density of, *Heacock, Larry.* 42 (1969) 60-66.
Segments. An Inequality for Elliptic and Hyperbolic, *Golomb, Michael and Haruki, Hiroshi.* 46 (1973) 152-155.
Segments Needed to Extend a Cube to N Dimensions. The Number of, *Hess, Adrien L. and Diekhans, Carl.* 43 (1970) 189-192.
Seidlin's Questionnaire on Mathematics Teaching. Professor, *Sanders, S.T.* 11 (1936) 2.
Seismic Exploration. Critical Curves in, *Helfenstein, H.G.* 31 (1957) 85-90.
Seismic Methods. Maximum Dips by, *Funkenbusch, William W.* 19 (1945) 171-172.
Selecting Students According to Ability and Measuring Their Achievement by Common Examinations. An Experiment in, *Harper, Floyd S.* 19 (1944) 27-32.
Selection and Optimum Registration (Equilibrium of Awareness). Optimum, *Pikler, Andrew.* 24 (1951) 175-189.
Self-Defining Infinite Sequence, with an Application to Markoff Chains and

Probability. A, *Nagel, Alexander.* 36 (1963) 179-183, 231-239.
Self-Generating Integers. *Schwartz, Benjamin L.* 46 (1973) 158-160.
Self-Inverse? Which Nonnegative Matrices are, *Harary, Frank and Minc, Henryk.* 49 (1976) 91-92.
Semicircle. Note on a Quadrilateral Inscribed in a, *Lewis, F.A.* 17 (1942) 70-71.
Semicompleteness for Integer Sequences. On the Equivalence of Completeness and, *Brown, J.L., Jr.* 36 (1963) 224-226.
Semi-Complex Functions and their graphs. *Karst, Otto J.* 35 (1962) 282-288.
Semi-Complex Functions. Graphs of, *Schaefer, Paul.* 37 (1964) 273.
Semi-Group. Cosets in a, *Weaver, Milo W.* 25 (1952) 125-136.
semigroups of [the Positive Integers] N. On the Sub, *Sit, William Y. and Siu, Man-Keung.* 48 (1975) 225-227.
Semigroups. Straddles on, *Franklin, S.P. and Lindsay, John W.* 34 (1961) 269-270.
Semilinear Transformations. A Note on Generalized, *Dotson, W.G., Jr.* 43 (1970) 147-149.
Seminar Plan in Mathematics. A, *Sullivan, Sister Helen.* 17 (1943) 170-173.
Seminatural System. Completely Independent Axioms for a, *Jacobson, Richard A.* 41 (1968) 88-89; *Sequel* 43 (1970) 93-94.
Seminatural System. On the Complete Independence of the Axioms of a, *Stern, Samuel T.* 39 (1966) 232-236; *Sequels* 41 (1968) 88-89; 43 (1970) 93-94.
Seminatural Systems as Nonempty, Well-Ordered Sets Without Last Element. *Stern, Samuel T.* 43 (1970) 93-94.
Seminormed Spaces and the Daniell Process of Extending an Integral. Completion of, *Lamadrid, Jesús Gil de.* 33 (1960) 199-210.
Semirings. Notes on, *Hooi-Tong, Loh.* 40 (1967) 150-152.
Separability of the Riccati Differential Equation. On the, *Siller, Harry.* 43 (1970) 197-202.
Separable Functions and the Generalization of Matricial Structure. *Rosenberg, Milton.* 42 (1969) 175-186.
Separable Spaces. On Subspaces of, *Cameron, Douglas E.* 48 (1975) 288.
Separating Points in a Rectangle. *Schwartz, Benjamin L.* 46 (1973) 62-70.
Separation. On Harmonic, *Henderson, Archibald and Lasley, John Wayne, Jr.* 13 (1938) 3-21.
Separation Theorems for Convex Sets. *Pettis, B.J.* 29 (1956) 233-247.
Sequence. A Curious, *Kahan, Steven.* 48 (1975) 290-292; *Comment* 49 (1976) 102-103.
Sequence. A Proof of the Formula Representing the Logarithm as the Limit of a, *Matlak, R.F.* 39 (1966) 64-65.
Sequence and a Card Trick. A Finite, *Amir-Moéz, Ali R.* 30 (1957) 25-26.
Sequence Approach to Uniform Continuity. A, *Staib, John H.* 40 (1967) 270-273.
Sequence. Iteration and Correction Formulas for the Variance of a, *Pascual, Michael J.* 42 (1969) 249-252.
Sequence of Fibonacci Numbers. A Note on the, *Stanley, T.E.* 44 (1971) 19-22.
Sequence of Triangles. Evaluation of a Limit by a, *Springer, C.E.* 18 (1944) 185-187.
Sequence $(1+1/n)^n$. Boundedness of the, *Youse, Bevan K.* 37 (1964) 50-51.
Sequence {sin n} . On the Limit Points of the, *Staib, John H. and Demos, Miltiades S.* 40 (1967) 210-213; *Comment* 42 (1969) 94.
Sequence {sin n}. The, *Ogilvy, C. Stanley.* 42 (1969) 94.
Sequence, with an Application to Markoff Chains and Probability. A Self-Defining Infinite, *Nagel, Alexander.* 36 (1963) 179-183, 231-239.
Sequences. A Binomial Identity Related to Rhyming, *Levine, Jack.* 32 (1958) 71-74.
Sequences. A Characterization of O-, *Brown, J.L., Jr.* 45 (1972) 209-213.
Sequences. Additive, *Hirsch, Martin D.* 50 (1977) 264.
Sequences and Pascal's Triangle. Recurrent, *Green, Thomas M.* 41 (1968) 13-21.
Sequences. Integer Representations and Complete, *Brown, J.L., Jr.* 49 (1976) 30-32.
Sequences of Integers Defined by Sieves. On Certain, *Gardiner, Verna, Lazarus, R., Metropolis, N. and Ulam, S.M.* 29 (1956) 117-122; *Sequel* 31 (1958) 277-280.
Sequences of kth Powers with kth Power Partial Sums. *Klarner, David A.* 37 (1964) 165-167.
Sequences. On N-, *Brown, T.C. and Weiss, Max L.* 44 (1971) 89-92.
Sequences. On the Equivalence of Completeness and Semicompleteness for Integer, *Brown, J.L., Jr.* 36 (1963) 224-226.
Sequences vs. Neighborhoods. *Staib, John H.* 44 (1971) 145-146.
Series: *see also* Alternating, Convergent, Geometric, Harmonic, Infinite.
Series. A New General Method of Summing Divergent, *James, Glenn.* 22 (1949) 235-244.
Series. A Simple Proof of Aaron's Conjecture on the Farey, *Hahn, Hwa S.* 40 (1967) 274.
Series. Additive Entities, An Extension of Farey, *Grant, Harold Sinclair.* 14 (1940) 256-260.
Series. An Application of Generating, *Moser, Leo.* 35 (1962) 37-38.

Series and Its Developments in England up to Cotes. On the Discovery of the Logarithmic, *Hofmann, Josef Ehrenfried.* 14 (1939) 37-45.
Series. Application of the Summation by Parts Formula to Summability of, *Fort, Tomlinson.* 26 (1953) 199-204.
Series by the Residue Theorem. Summation of, *Ricardo, Henry J.* 44 (1971) 24-26.
Series, Computation of Square Roots and Solution of Third Degree Equations. Nested, *Sarafyan, Diran.* 27 (1953) 19-36.
Series] cosh x/cos x and a Note on Carlitz's Coefficients of sinh x/sin x. The Coefficients of [the, *Gandhi, J.M.* 31 (1958) 185-191; *Comment* 32 (1959) 132, 136; *Sequel* 34 (1960) 37-40.
Series] cosh x/cos x. Note on the Coefficients of [the, *Carlitz, Leonard.* 32 (1959) 132, 136.
Series] cosh x/cos x. On the Coefficients of [the, *Krick, M.S.* 34 (1960) 37-40.
Series in Closed Form. Evaluation of Certain Classes of Infinite Numerical, *Fain, Bill W.* 26 (1953) 121-126.
Series]. Insights or Trick Methods [for Summing, *O'Toole, A.L.* 15 (1940) 35-38.
Series $\Sigma_{k=1}^{\infty} k^{-s}$, s = 2,3,4,..., Once More. The, *Stark, E.L.* 47 (1974) 197-202.
Series of Line Involutions in [the Group] S_3 Defined as Point Transformations of a V_4^2 in S_5 Into Itself. A, *Wylie, C.R., Jr.* 14 (1939) 125-133.
Series. On a Generalized Feld, *Nedumpilly, Sister M. Redempta and Regan, Francis.* 35 (1962) 91-98.
Series. On Kaprekar's Periodic Oscillating, *Shah, A.P. and Vaidya, A.M.* 41 (1968) 253-255.
Series. On Natural Boundaries of a Generalized Lambert, *Regan, Francis and Rust, Charles.* 31 (1957) 45-50.
Series. On the Behavior of a Special, *Beardon, A.F.* 41 (1968) 74-77.
Series. On the Summation of Certain Types of Finite, *Niessen, A.M.* 18 (1944) 271-275.
Series Related to the Harmonic Series. Class Notes on, *Demos, Miltiades S.* 46 (1973) 40-41.
Series Representation of Elements in Separable Banach Spaces. *Hansen, Robert C.* 45 (1972) 190-194.
Series] sinh x/sin x. The Coefficients of [the, *Carlitz, Leonard.* 29 (1956) 193-197; *Sequels* 31 (1958) 185-191; 32 (1959) 132, 136.
Series. Some Special, *Rhoades, B.E.* 34 (1961) 165-167.
Series Whose General Terms are Polynomials. Summing, *Miser, Wilson L.* 6:7 (1932) 17-19.
Series with Polynomial Terms. Summation of Finite, *Farnell, Albert B.* 17 (1942) 68-69.
Set-Theoretic Form. Combinatorial Problems in, *Palmer, Edgar M.* 42 (1969) 32-37.
Set Theory. Some Comments on the Role of the Axiom of Choice in the Development of Abstract, *Zlot, William Leonard.* 32 (1959) 115-122.
Sets: *see also* Finite, Infinite.
Sets. A Note on the Well-Ordering of, *Keeping, E.S.* 33 (1959) 43-45.
Sets. Conic Powers of Point, *Maley, C.E.* 38 (1965) 152-158.
Sets of Complex Numbers. *Daykin, D.E. and Wilansky, Albert.* 47 (1974) 228-229.
Sets. On Derived, *Rutt, Norman E.* 18 (1943) 53-63.
Sets. The Application of a Function to Unions and Intersections of, *McAllister, Byron L.* 42 (1969) 93-94.
Sets. Venn Diagrams and Independent Families of, *Grünbaum, Branko.* 48 (1975) 12-23.
Setting the Handicap in Billiards, A Numerical Investigation. *Neuts, Marcel F.* 46 (1973) 119-127.
Seven Game Series in Sports. *Groeneveld, Richard A. and Meeden, Glen.* 48 (1975) 187-192.
17th-Century English Mathematical Manuscript. Notes on a, *Richeson, A.W.* 11 (1937) 165-171.
Seventh Lesson in the History of Mathematics. A, *Miller, G.A.* 18 (1943) 67-76.
Sextant and Bi-Sextant Triangles. *Mitchell, B.E.* 5:1 (1930) 19-24, 15-18.
Sextantal Trigonometry. *Mitchell, B.E.* 5:5 (1931) 17-20.
Shadows of Four-Dimensional Polytopes. *Chilton, Bruce L.* 44 (1971) 269-273.
Shah [on Steiner's Theorem]. A Remark on a Note of S.M., *Venkatramaiah, S.* 39 (1966) 225.
Ship. The Form of a, *Bateman, H.* 16 (1941) 141-149.
Ships. Some Definite Integrals Occurring in Havelock's Work on the Resistance of, *Bateman, H.* 23 (1949) 1-4.
Ships. The Resistance of, *Bateman, H.* 16 (1941) 79-88.
Shock Conditions for Gases. The Fundamental Hydrodynamical Equations and, *Thomas, T.Y.* 22 (1949) 169-189.
Shock Recordings. Line of Flight From, *Reid, Walter P.* 41 (1968) 59-63.
Short Proof of Cramer's Rule. A, *Robinson, Stephen M.* 43 (1970) 94-95.
Short Proof of the Urysohn Metrization Theorem. A, *Meyer, Paul R.* 43 (1970) 268-269.
Shortcut to Summation of Infinite Series. *Ehrenburg, D.O.* 39 (1966) 93-96.
Shortest Connected Graph Through Dynamic Programming Technique. The, *Garg, R.C. and Kumar, Santosh.* 41 (1968) 170-173.

Shortest Paths Within Polygons. *Jacobson, R.A. and Yocom, K.L.* 39 (1966) 290-293.
Should Your Child be a Mathematician? *New York Life Insurance Company.* 32 (1958) 103-104.
Shuffling Cards. On, *Wilde, Edwin F. and Tomandl, Daniel A.* 42 (1969) 139-142.
Side-and-Diagonal Numbers. *Waugh, Frederick V. and Maxfield, Margaret W.* 40 (1967) 74-83.
Sidelights on the Cardan-Tartaglia Controversy. *Nordgaard, Martin A.* 12 (1938) 327-346.
Sieve. The Random, *Hawkins, David.* 31 (1957) 1-3.
Sieves. On Certain Sequences of Integers Defined by, *Gardiner, Verna, Lazarus, R., Metropolis, N. and Ulam, S.M.* 29 (1956) 117-122; *Sequel* 31 (1958) 277-280.
$\sigma(xy) = \sigma(yx)$. On, *Kurepa, Svetozar.* 41 (1968) 70-74.
$\sigma(n)$ and $\phi(n)$. Inequalities for, *Annapurna, U.* 45 (1972) 187-190; *Comment* 46 (1973) 161.
Sign. The Distance Formula and Conventions for, *Mott, Thomas E.* 35 (1962) 39-42.
Significant Figures. *Griffin, Carroll W.* 10 (1935) 20-24.
Signless Numbers. Keep the, *Ransom, William R.* 34 (1961) 156.
Signs. A Simple Proof of Descartes' Rule of, *Krishnaiah, P.V.* 36 (1963) 190.
Sim: A Winning Strategy for the Second Player. The Game of, *Mead, Ernest, Rosa, Alexander and Huang, Charlotte.* 47 (1974) 243-247.
Similar Solutions to the Generalized Planar Three Body Problem. *Garofalo, A.M.* 35 (1962) 277-281.
Similar To It. Partitioning a Triangle Into 5 Triangles, *Usiskin, Zalman and Wayment, Stanley G.* 45 (1972) 37-42.
Similar Triangles. *Mauldon, J.G.* 39 (1966) 165-174.
Similarity Classifications of Complex Matrices. *Lamont, John S., Maxfield, John E. and Selfridge, R.G.* 34 (1961) 147-152.
Simple Approach to Isoperimetric Problems in the Plane. A, *DeMar, Richard F.* 48 (1975) 1-12; *Sequel* 48 (1975) 219-221.
Simple Approach to the Factorization of Integers. A, *Christilles, William Edward.* 34 (1961) 411-416.
Simple Aspects of Primes. Some, *Sanders, S.T.* 5:6 (1931) 12-16.
Simple Construction of a Non-Desarguesian Plane. A, *Saxena, Subhash C.* 46 (1973) 225.
Simple Correlation. A Note on, *Fréchet, Maurice.* 32 (1959) 265-268.
Simple Extension of the Aristotelian Definition of Mathematics. A, *Kennedy, H.* 30 (1957) 207-208.
Simple Game. A, *Horton, Robert E.* 25 (1951) 53-54.
Simple Groups. The Search for Finite, *Gallian, Joseph A.* 49 (1976) 163-180.
Simple Interest. A Note on, *Philip, Maximilian.* 19 (1945) 414-417.
Simple-Interest Rate Implied in Installment Payments. The, *Feldman, Emanuel.* 24 (1951) 278-280.
Simple Irrationality Proof for nth Roots of Positive Integers. A, *Lange, L.J.* 42 (1969) 242-243.
Simple Iteration Algorism for Generating cos nx and sin nx. A, *Karst, Edgar.* 34 (1961) 271-273.
Simple Matrix Inversion Procedure? A, *Squire, William.* 37 (1964) 214.
Simple Matrix Isomorphism. A Note on a, *Robinson, Donald W.* 32 (1959) 213-215.
Simple Method for Approximating Logarithms. A, *Churchill, Edmund.* 22 (1949) 277-278.
Simple Operational Equations with Constant Coefficients. *Lewis, D.C.* 27 (1954) 177-188.
Simple Proof of Aaron's Conjecture on the Farey Series. A, *Hahn, Hwa S.* 40 (1967) 274.
Simple Proof of Descartes' Rule of Signs. A, *Krishnaiah, P.V.* 36 (1963) 190.
Simple Proof of Fermat's Last Theorem for n = 6 and n = 10. A, *Breusch, Robert.* 33 (1960) 279-281.
Simple Proof of the Formula for Sin(A+B). A, *Schaumberger, Norman.* 35 (1962) 229.
Simple Proof of the Morley Theorem. A, *Bankoff, Leon.* 35 (1962) 223-224.
Simple Regular Sphere Packings in Three Dimensions. *Smalley, Ian.* 36 (1963) 295-299.
Simple Song [Humor]. A, *Anonymous.* 49 (1976) 180.
Simpler Proof of Heron's Formula. A, *Raifaizen, Claude H.* 44 (1971) 27-28.
Simplex are Associated. The Altitudes of a, *Gerber, Leon.* 46 (1973) 155-157.
Simplex. On the Geometry of the n-Dimensional, *Iwata, Shikō.* 35 (1962) 273-277.
Simplex. The Circumradius of a, *Ivanoff, Vladimir F.* 43 (1970) 71-72.
Simplices. Canonical Placement of, *Kenelly, John W. and Sobczyk, Andrew.* 41 (1968) 150-152.
Simplification by Rotation. *Steen, F.H.* 15 (1941) 369-374.
Simplification of Formulas in the Mathematics of Finance. On the, *Bell, Clifford.* 7:7 (1933) 21-23.
Simply Derived Formulae for Determining the Third Part of an Arbitrary Angle. *Kenny, F.M.* 6:5 (1932) 18-25.
Simultaneous Algebraic Equations. On, *Smith, H.L.* 7:3 (1932) 10-14.

Simultaneous Linear Equations. A Note on the Solution of, *James, Glenn.* 32 (1959) 207-209.
Simultaneous Quadratics. On, *Smith, H.L.* 3:1 (1928) 16-18.
Simultaneous Solution of the Three Ancient [Greek] Problems. *Little, Joyce Currie and Harris, V.C.* 37 (1964) 310-311.
Sin(α+β) and the Incenter Inequality]. Notes [on, *Lin, Tien-Hsung.* 38 (1965) 158-159; *Comment* 40 (1967) 28.
Sin (A+B). *Young, F.H.* 27 (1954) 208-209; *Comment* 28 (1954) 51.
Sin(A+B). A Simple Proof of the Formula for, *Schaumberger, Norman.* 35 (1962) 229.
sin n}. On the Limit Points of the Sequence {, *Staib, John H. and Demos, Miltiades S.* 40 (1967) 210-213; *Comment* 42 (1969) 94.
sin n}. The Sequence {, *Ogilvy, C. Stanley.* 42 (1969) 94.
sin nx. A Simple Iteration Algorism for Generating cos nx and, *Karst, Edgar.* 34 (1961) 271-273.
sin x]. A New Approach to an Old Problem [on the Derivative of, *Lindstrom, Peter A.* 42 (1969) 88-90.
Sine and Cosine Functions. The, *Mancill, Julian D.* 36 (1963) 302-311.
Sine and Cosine. On Defining the, *Sholander, Marlow.* 43 (1970) 72-75.
Sine Function. On the, *Webber, W. Paul.* 6:3 (1931) 12-13.
Sines and Law of Cosines for Polygons. The Law of, *Kershner, R.B.* 44 (1971) 150-153.
Singular Matrices. Groups of, *Johnson, Colonel, Jr.* 49 (1976) 205-207.
Singular Measurable Sets and Linear Functionals. *LaSalle, J.P.* 22 (1948) 67-72.
Singularities of Algebraic Curves. The Higher, *Walker, B.M.* 12 (1938) 263-285.
sinh x/sin x. The Coefficients of [the Series], *Carlitz, Leonard.* 29 (1956) 193-197; *Sequels* 31 (1958) 185-191; 32 (1959) 132, 136.
Six Equal Inscribed Circles. *Bankoff, Leon.* 36 (1963) 65-66.
Sixteenth Century, Jacques Peletier (1517-1582). A French Mathematician of the, *Thébault, Victor T.* 21 (1948) 147-150.
Sixth Lesson in the History of Mathematics. A, *Miller, G.A.* 17 (1943) 341-350.
Sketching Loci in Polar Co-ordinates. *Andree, Richard V.* 24 (1951) 277.
Skew Curves Setting Up a Null System in Space. *Eves, Howard.* 19 (1944) 55-61.
Slicing Boxes Into Cubelets. *Niven, Scott.* 47 (1974) 101-103.
Slide-Bee. A, *Dyhikowski, James G.* 31 (1957) 4.
Slide Rule. A Method for Finding the Real Roots of Cubic Equations by Using the, *Pennisi, Louis L.* 31 (1958) 211-214; *Comment* 32 (1958) 41-43.
Slide Rule. A Supplementary Note on Solutions of Cubic Equations on a, *Schwartz, Benjamin L.* 32 (1958) 41-43.
Slide Rule Course. Pertinent Historical Material for a, *Sleight, Norma.* 20 (1945) 11-20.
Slide Rule Criterion. *Ransom, William R.* 27 (1953) 41.
Slide Rule] Device, "The X-Pone", for Pointing Off Decimals. A Mechanical [, *Weckesser, C.L.* 28 (1954) 87-92.
Slide Rule Solution of a Woolen Mill Problem. A, *Ingalls, Edmund E.* 8 (1933) 54-56.
Slide Rule. Solution of Triangles on the, *Harris, V.C.* 31 (1957) 95-97.
Slide Rule. The Log Log Scales of the, *Eagle, Edwin L.* 25 (1951) 101-104.
Slide Rules. Cryptographic, *Levine, Jack.* 34 (1961) 322-328.
Smallest Prime Greater than a Given Positive Integer. On the, *Kahan, Steven.* 47 (1974) 91-93.
Smoothings of a Time Series. Successive, *Adams, L.J.* 10 (1935) 18-19.
So You Think You Can Count! *Adler, Jerry.* 28 (1954) 83-86.
Social Science--An Early Example. Mathematical, *Hutcheson, Francis.* 47 (1974) 234.
Social Sciences. Mathematics and the, *Fréchet, Maurice.* 21 (1948) 199-211.
Society for the Improvement of Mathematical Notation and Terminology. *Hyers, D.H.* 32 (1959) 203-206.
Solid of Revolution. A, *Ward, James A.* 19 (1944) 111-118.
Solid Polyomino Constructions. *Forseth, Scott L.* 49 (1976) 137-139.
Solids. A Formula for the Calculation of the Inertia Moment of Some Geometrical, *Kefalas, Christos N.* 26 (1953) 265-269.
Soluble Nth Order Differential Equations. On Some, *Klamkin, Murray S.* 43 (1970) 272-275.
Solution. How to Look for the, *Pólya, George.* 9 (1935) 172-173.
Solution of a Certain Quartic Equation. The, *Fisher, B.* 45 (1972) 97-98.
Solution of a Functional Equation in the Multiplicative Theory of Numbers. *Bell, E.T.* 24 (1951) 233-235.
Solution of a Simple Game. The, *Cohen, Daniel I.A.* 45 (1972) 213-216.
Solution of Algebraic Equations by Infinite Series. The, *Lewis, Arthur J.* 10 (1935) 80-95.
Solution of an Equation in a Linear Algebra by Means of the Minimal Polynomial. *Kieffer, John C. and Stein, F. Max.* 42 (1969) 114-121.

Solution of Certain Linear Boundary Value Problems by Use of Finite Transforms. *Cell, John W.* 40 (1967) 200-206.
Solution of Equations in an Infinity of Unknowns in Linear Topological Spaces --An Abstract. On the, *Köthe, Gottfried.* 11 (1937) 185.
Solution of Laplace's Equation for a Semi-Infinite Strip. A, *Edstrom, Clarence R.* 45 (1972) 254-259; *Comment* 46 (1973) 162.
Solution of Linear Homogeneous Differential Equations. On the, *Clough, Anne Reseigh and Dickinson, David.* 35 (1962) 235-239.
Solution of Numerical Equations by Use of the Circle of Curvature. *Wells, Richard J.* 13 (1938) 67-72.
Solution of Numerical Equations. The, *Bell, Clifford.* 14 (1940) 435-438.
Solution of Quadratic and Cubic Equations. New Models for the, *Emch, Arnold.* 9 (1935) 162-164.
Solution of Simultaneous Linear Equations. A Note on the, *James, Glenn.* 32 (1959) 207-209.
Solution of the Cubic. A Graphical, *Curtis, H.B.* 12 (1938) 325-326.
Solution of the Cubic Equation. Another, *Campbell, J.G.* 35 (1962) 43.
Solution of the Cubic Equation. Hyperbolic, *Short, W.T.* 12 (1937) 111-114.
Solution of the Four Color Problem. *Steen, Lynn A.* 49 (1976) 219-222; *Comment* 50 (1977) 173.
Solution of the Quartic. On the, *Packard, Robert W.* 39 (1966) 63.
Solution of the Real Quartic. On the, *Carpenter, William F.* 39 (1966) 28-30.
Solution of the Trinomial Equation in Infinite Series by the Method of Iteration. The, *Hall, Newman A.* 15 (1941) 219-229.
Solution of Triangles on the Slide Rule. *Harris, V.C.* 31 (1957) 95-97.
Solution to the Theorem of Apollonius. A, *Hillard, Chester R.* 4:4 (1929) 14-15.
Solutions of a System of Linear Equations. The Coset of, *Morrill, John E.* 42 (1969) 248-249.
Solutions of Certain Riccati Differential Equations. On, *Wong, James S.W.* 39 (1966) 141-143.
Solutions of Cubic Equations on a Slide Rule. A Supplementary Note on, *Schwartz, Benjamin L.* 32 (1958) 41-43.
Solutions of Systems of Linear Differential Equations as Entire Analytic Functionals of the Coefficient Functions. *Michal, Aristotle D.* 22 (1948) 57-66.
Solutions of the [Diophantine] Equation $x^a + y^b = z^c$. On, *Liff, Allan I.* 41 (1968) 174-175.
Solutions of the Equation $f'(x) = f(x+a)$. A Note on the, *Green, John W.* 26 (1953) 117-120.
Solutions of [the Equation] $x^y = y^x$. The Real, *Beardon, A.F.* 39 (1966) 108-111.
Solutions of [the Fermat Equation] $A^k + B^k = C^k$ in Nonsingular Integral Matrices. *Gibson, P.M.* 43 (1970) 275-276.
Solutions of the Quadratic Equation Obtained by the Aid of the Trigonometry. The, *Aude, H.T.R.* 13 (1938) 118-121.
Solutions of Three Ancient [Greek] Problems. On the, *Graef, Edward V. and Harris, V.C.* 42 (1969) 28-32.
Solutions of Transcendental Systems. Higher Order Approximations to, *Maley, C.E.* 34 (1960) 97-99.
Solvable Diophantine Equation. A, *Wildberger, Norman.* 49 (1976) 200-201.
Solve a Cubic Equation. Using the Hessian to, *Ward, James A.* 9 (1935) 235-240.
Solving Differential Equations without Complex Numbers. *Pascual, Michael J.* 31 (1957) 93-94.
Solving Maze Puzzles. *Kravitz, Sidney.* 38 (1965) 213-217.
Solving Reciprocal Equations. On a Substitution Made in, *Singer, Arnold.* 38 (1965) 212.
Solving Simultaneous Equations. The Dialytic Method for, *Miser, Wilson L.* 7:2 (1932) 16-20.
Some Fifth Degree Diophantine Equations. *Utz, W.R.* 38 (1965) 161-163.
Song [Humor]. A Simple, *Anonymous.* 49 (1976) 180.
Sorgenfrey Line. Compact Subsets of the, *Espelie, M. Solveig and Joseph, James E.* 49 (1976) 250-251.
Sources of Euclid. The, *Rutt, Norman E.* 11 (1937) 374-381.
South American Game. The, *Itzinger, Oskar.* 50 (1977) 17-21.
Space: *see also* Metric, Vector.
Space. *McCoy, Dorothy.* 9 (1935) 155-162.
Space Curves. A Note on, *Subba Rao, H.S.* 33 (1960) 162-164.
Space-Time Problem. Mathematics and the, *Osborn, Roger.* 25 (1952) 147-153.
Spaceland as Viewed Informally from the Fourth Dimension. *Jacobson, R.A.* 40 (1967) 174-178.
Spaces and General Analysis. Abstract Sets, Abstract, *Fréchet, Maurice.* 24 (1951) 147-155.
Spaces in which Compact Sets are Closed. *Joseph, James E.* 49 (1976) 90.
Spaces. On Subspaces of Separable, *Cameron, Douglas E.* 48 (1975) 288.
Special Case of a Prime Number Theorem. A, *Lariviere, R.* 31 (1958) 281.
Special Case of a Transformation Due to Gurney. A, *Adams, L.J.* 9 (1934) 53.
Special Functions. Some Relations Involving, *Deverall, L.I. and Thorne, C.J.* 25 (1952) 183-188.

Special Series. Some, *Rhoades, B.E.* 34 (1961) 165-167.
Spectral Decomposition of Matrices for High School Students. *Wilansky, Albert.* 41 (1968) 51-59.
Speculations on a Parachute Problem. Classroom, *Osborn, Roger.* 27 (1954) 265-267.
Speedy Solution of the Cubic. A, *Pettit, John T.* 21 (1947) 94-98; *Comment* 21 (1948) 265-266.
Speedy Solution of the Cubic." Comment on "A, *Greenwood, Robert E.* 21 (1948) 265-266.
Sphere. Distance Between Two Points on a, *Marcus, Curt F.* 37 (1964) 54.
Sphere in an N-Dimensional Euclidean Space. Volume and Surface of a, *Zatzkis, Henry.* 30 (1957) 155-158.
Sphere. On Fermat's Problem on the Surface of a, *Cockayne, E.J.* 45 (1972) 216-219.
Sphere Packings in Three Dimensions. Simple Regular, *Smalley, Ian.* 36 (1963) 295-299.
Sphere. The Equation of a, *Klamkin, Murray S.* 42 (1969) 241-242.
Sphere. The Peaucellier Linkage on the Surface of a, *Goldberg, Michael.* 38 (1965) 308-311.
Spheres Associated With a Tetrahedron. *Thébault, Victor T.* 26 (1952) 33-34.
Spheres in a Cube. On the Densest Packing of Equal, *Goldberg, Michael.* 44 (1971) 199-208.
Spherical Cones. Sections of n-Dimensional, *Keyton, Nancy.* 42 (1969) 80-83.
Spherical Triangles. Duality in, *Klamkin, Murray S.* 46 (1973) 208-211.
Spherical Trigonometry--An Emergency Course. *McClenon, R.B.* 18 (1943) 32-36.
Spherical Trigonometry. Proofs of the Fundamental Theorems of, *Clark, C.E.* 21 (1948) 151-155.
Spinoza. The Influence of Mathematics on the Philosophy of, *Moorman, R.H.* 18 (1943) 108-115.
Spiral Curve. Theory of the Keuffel and Esser Logarithmic, *Grummann, H.R.* 10 (1936) 167-170.
Spirals. On a Property of Logarithmic, *Vinh, N.X. and Zirakzadeh, A.* 41 (1968) 26-28.
Sports] Competitions. A Nonparametric Model for Series [, *Vargo, Louis G.* 50 (1977) 25-27.
Sports. Seven Game Series in, *Groeneveld, Richard A. and Meeden, Glen.* 48 (1975) 187-192.
Sprays and Cauchy's Distribution. *Wilkins, C.A.* 33 (1960) 261-264.
Square: *see also* Magic, Sums of.
Square. Consecutive Integers Whose Sum of Squares is a Perfect, *Alfred, Brother U.* 37 (1964) 19-32; *Sequels* 37 (1964) 218-220; 40 (1967) 194-199; 41 (1968) 255-258.
Square Holes and Square Pegs in Round Holes. On Round Pegs in, *Singmaster, David.* 37 (1964) 335-337.
Square Matrices. An Interesting Property of, *Kesavan, S.* 44 (1971) 99-101.
Square. Maximizing the Smallest Triangle Made by N Points in a, *Goldberg, Michael.* 45 (1972) 135-144.
Square. Note on Consecutive Integers Whose Sum of Squares is a Perfect, *Philipp, Stanton.* 37 (1964) 218-220; *Comment* 38 (1965) 106.
Square of the Circle. A Note on an Approximation to the, *Lowston, Walter H.* 17 (1942) 81-82.
Square. On the Packing of Ten Equal Circles in a, *Schaer, Jonathan.* 44 (1971) 139-140.
Square Patterns in the Pascal Triangle. Perfect, *Usiskin, Zalman.* 46 (1973) 203-208; *Comment* 48 (1975) 178.
$\sqrt{n}$ is Irrational]. Look, Ma, No Primes [, *Fine, Nathan J.* 49 (1976) 249; *Comment* 50 (1977) 175.
$\sqrt{2}$ is Irrational. A Geometric Proof that, *Turner, Barbara.* 50 (1977) 263.
$\sqrt{2}$. Note on a Nonlinear Recurrence Related to, *Graham, R.L. and Pollak, H.O.* 43 (1970) 143-145.
Square Roots and Solution of Third Degree Equations. Nested Series, Computation of, *Sarafyan, Diran.* 27 (1953) 19-36.
Square Roots. Approximations to, *Ransom, William R.* 23 (1949) 54-55.
Square Roots by an Iterative Method and Its Generalization to Positive Integral Roots of Order n. *Bauerochse, Tom R.G.* 39 (1966) 219-223.
Square Roots. Formulas for, *Nytch, Stephan.* 30 (1957) 276.
Square. The Packing of Equal Circles in a, *Goldberg, Michael.* 43 (1970) 24-30.
Squared Away in [the Number] 1961. Getting, *Trigg, Charles W.* 34 (1961) 168.
Squares. A Certain Bridge Tournament Seating Problem and Latin, *Ward, James A.* 29 (1956) 249-253.
Squares and Cubes. Note on, *Allard, Jacques.* 37 (1964) 210-214.
Squares. Biperiodic, *Herzog, Fritz.* 48 (1975) 97-100.
Squares in Arithmetic Progression. On, *Goodrich, Merton Taylor.* 39 (1966) 87-88.
Squares of Some Triangular Numbers. On the, *Piza, Pedro A.* 23 (1949) 15-16.
Squares of the Form $(m^2-1)a_n^2+t$. Perfect, *Klamkin, Murray S.* 42 (1969) 111-113.
Squares. Proof without Words: Cubes and, *Love, J. Barry.* 50 (1977) 74.
Squares That Can Be Constructed by the

Method of Current Groups. The Number of 12 x 12, *Candy, A.L.* 9 (1935) 223-235.
Squares. The Representation of a Gaussian Integer as a Sum of Two, *Mordell, L.J.* 40 (1967) 209.
Stability of Differential Expressions. On the, *Ulam, S.M. and Hyers, D.H.* 28 (1954) 59-64.
Stability of Periodic Time-Varying [Mechanical] Systems. *Pipes, Louis A.* 30 (1956) 71-80.
Standard Deviation, and Coefficient of Correlation for a Composite Group in Terms of Similar Indices of Its Subgroups. Formulas Suitable for Machine Computation for the Mean, *Mills, C.N.* 15 (1941) 395-398.
Standard Error of the Standard Error of Estimate. The, *Baten, William Dowell.* 16 (1942) 183-185.
Standard Tests. *Schmidt, Sophie.* 6:1 (1931) 6-9.
Standards--For What? [Educational], *Foster, James E.* 24 (1950) 38-41.
Statistical Decision Procedures in Industry. I: Control Charts by Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. *Coleman, Edward P.* (I), *Gold, Ben K.* (II), *Howell, John M.* (III) *and Moan, O.B.* (IV). 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Statistical Formulae. An Observation About, *Webber, W. Paul.* 3:7 (1929) 18-19.
Statistical Problem in Advertising. A, *Smith, C.D.* 23 (1949) 23-24.
Statistical Quality Control. *Howell, John M.* 25 (1952) 155-157.
Statistical Tests. Tchebycheff Inequalities as a Basis for, *Smith, C.D.* 28 (1955) 185-195.
Statistics. A Note on Densities of Order, *Makowski, Gary G.* 47 (1974) 100-101.
Statistics: An Example. The Computer and Basic, *Henschel, Donald E. and Wadycki, Walter J.* 46 (1973) 192-198.
Statistics at the Track. Beginning, *Cooke, W.P.* 46 (1973) 250-255.
Statistics. Characteristic Functions in, *Kenney, J.F.* 17 (1942) 51-67, 99-114.
Statistics. Functional Equations in Mathematical, *Tan, Peter.* 45 (1972) 179-183.
Staudt-Clausen Theorem. The, *Carlitz, Leonard.* 34 (1961) 131-146.
Steinberg. Note on a Paper of, *Gould, H.W.* 33 (1959) 46-48.
Steiner-Lehmus Theorem. A Direct Proof of the, *Malešević, Jovan V.* 43 (1970) 101-102.
Steiner-Lehmus Theorem. On the, *Lewin, Mordechai.* 47 (1974) 87-89.
Steiner's Problem. A Note on, *Bajaj, P. N.* 40 (1967) 273.
Steiner's Theorem]. A Remark on a Note of S.M. Shah [on, *Venkatramaiah, S.* 39 (1966) 225.
Stereographic Projection in Vector Notation. The, *Marcus, Curt F.* 39 (1966) 100-102.
Stieltjes Integration. A Connection Between Two Theorems in the Theory of Riemann-, *Cargo, Gerald T.* 39 (1966) 202-203.
Still Another Elementary Proof that [the Sum] $\Sigma 1/k^2 = \pi^2/6$. *Giesy, Daniel P.* 45 (1972) 148-149.
Stirling Numbers. A Generalization of the S-, *Hines, Jerome.* 29 (1956) 200-203.
Stirling Numbers of the First Kind. A Note on, *Carlitz, Leonard.* 37 (1964) 318-321.
Stirling's Numbers. Taylor's Formula and, *Fort, Tomlinson.* 19 (1945) 163-170.
Stirling. Successful Mathematicians--James, *Gwinner, Harry.* 3:3 (1928) 5-7.
Stochastic Solution. Prisoner's Dilemma, A, *Hill, Walter W., Jr.* 48 (1975) 103-105.
Stock Quotations. On the Mathematics of, *Smith, C.D.* 8 (1934) 179-184.
Stokes' Theorem. Some Electrical Examples to Illustrate, *Reid, Walter P.* 32 (1958) 87-92.
Story of $(BGG)_i (i = 1,2,3)$ [Satire]. The, *Williams, Leland H.* 35 (1962) 228.
Straddles on Semigroups. *Franklin, S.P. and Lindsay, John W.* 34 (1961) 269-270.
Straight Line in Plane Analytics. The, *Smith, H.L.* 2:2 (1927) 12-14.
Straight Line Treated by Translation and Rotation. The, *May, Kenneth O.* 22 (1949) 211.
Straightedge and Compasses. Certain Topics Related to Constructions with, *Hess, Adrien L.* 29 (1956) 217-221.
Strange Ultrametric Geometry. A, *Akst, George.* 49 (1976) 142-145.
Strategy for Serving in Tennis. Optimal, *Gale, David.* 44 (1971) 197-199.
Strategy for the Second Player. The Game of Sim: A Winning, *Mead, Ernest, Rosa, Alexander and Huang, Charlotte.* 47 (1974) 243-247.
Strategy. Games of, *Dresher, Melvin.* 25 (1951) 93-99.
Strobogrammatic Years [Numbers]. *Howell, John M.* 34 (1961) 182.
Structure of Certain Tensors. On the, *Craig, Homer V.* 21 (1947) 21-29.
Student Activities. Coordination of Mathematics and Science Through, *Kormes, J.P.* 20 (1945) 86-90.
Student [Educational] Progress. *Enser, Samuel S.* 31 (1958) 154-155.

Student, Interesting the Superior, *Sleight, E.R.* 10 (1935) 58-62.
Student. The Subject or the, *James, Glenn.* 13 (1938) 129-132.
Student Tutorial System in Freshman Mathematics in Albion College. *Sleight, E.R.* 10 (1935) 101-103.
Students According to Ability and Measuring Their Achievement by Common Examinations. An Experiment in Selecting, *Harper, Floyd S.* 19 (1944) 27-32.
Student's Distribution. Ordinates for, *Howell, John M.* 36 (1963) 255-256.
Students. Mathematics as a Field of Specialization for College, *Zant, James H.* 19 (1945) 247-253.
Students on the Basis of Ability. Sectioning, *Wood, Frederick.* 11 (1937) 191-194.
Study and Teaching of the History of Mathematics. The, *Mitchell, U.G.* 13 (1938) 22-29.
Study of Conic Section Orbits by Elementary Mathematics. A, *Coffman, Raphael T.* 36 (1963) 271-280.
Study of Geometry as an Aid to Logical Thinking. Reflections on the, *Rickey, F.A.* 6:2 (1931) 12-15.
Study of Mathematics. Individual, *Webber, W. Paul.* 9 (1935) 106-108.
Study of Mathematics. Some Values of the, *Heggins, Lawrence E.* 6:1 (1931) 3-6.
Study of the Angular Velocity About a Point Between the Foci in Keplerian Elliptic Motion. A, *Keller, M. Wiles.* 12 (1937) 13-20.
Studying Geometry. Modes of, *Forno, Dora M.* 4:3 (1929) 5-11.
Studying Plane Geometry. The Investigative Method vs. the Traditional Method of, *Miller, Leroy S.* 6:2 (1931) 6-8.
Sturm's Theorem for Multiple Roots. *Thomas, Joseph Miller.* 15 (1941) 391-394.
Subadditivity is a Rotation Invariant. *Laatsch, Richard G.* 37 (1964) 195-196.
Subdivisions of the Plane. Multiple, *Marley, Gerald C.* 47 (1974) 202-206.
Subfields of Algebraically Closed Fields. *Miller, Michael D. and Guralnick, Robert M.* 50 (1977) 260-261.
Subgroup. A Representation of the Commutator, *Yff, Peter.* 29 (1956) 161.
Subgroup? When do the Periodic Elements of a Group Form a, *Sherman, Gary J.* 47 (1974) 279-281.
Subgroups and Equivalence Relations. *Malraison, Pierre J., Jr.* 50 (1977) 205-208.
Subgroups of Index Two--An Application of Goursat's Theorem for Groups. On the Number of, *Crawford, R.R. and Wallace, K.D.* 48 (1975) 172-174.
Subgroups of the Dihedral Group. The, *Cavior, Stephan R.* 48 (1975) 107.
Subject or the Student. The, *James, Glenn.* 13 (1938) 129-132.
Subsemigroups of [the Positive Integers] N. On the, *Sit, William Y. and Siu, Man-Keung.* 48 (1975) 225-227.
Subsets of a Finite Set. On the Number of, *Greenstein, David S.* 43 (1970) 36.
Subspaces of Separable Spaces. On, *Cameron, Douglas E.* 48 (1975) 288.
Substitution for Certain Trigonometric Integrals. Use of Hyperbolic, *Viertel, William K.* 38 (1965) 141-144.
Substitution. Hyperbolic Function, *Gwinner, Harry.* 11 (1937) 334-335.
Substitution Made in Solving Reciprocal Equations. On a, *Singer, Arnold.* 38 (1965) 212.
Substitutions. The Method of Successive, *Smith, H.L.* 5:5 (1931) 20-24.
Substitutions to an Annuity Problem. An Application of the Method of Successive, *Smith, H.L.* 5:6 (1931) 16-20.
Subtract? How Do You, *Rayl, Adrienne.* 3:4 (1928) 9-12.
Subtraction. General, *Petticrew, James W.* 43 (1970) 145-147.
Subtraction of Signed Numbers. Teaching, *Cole, Lena R.* 7:2 (1932) 6.
Successful Mathematicians--James Stirling. *Gwinner, Harry.* 3:3 (1928) 5-7.
Successions and the n-Kings [Chess] Problem. Combinations, *Abramson, Morton and Moser, William.* 39 (1966) 269-273.
Successions. Combinations and, *Church, C.A., Jr.* 41 (1968) 123-128.
Successive Differentiability. *Lange, L. H.* 34 (1961) 275-279.
Successive Smoothings of a Time Series. *Adams, L.J.* 10 (1935) 18-19.
Sufficient Condition for n-Short-Connectedness [of Graphs]. A, *Hedman, Bruce.* 47 (1974) 156-157.
Sufficient Conditions for Envelopes in n-Space. *Brown, Arthur B.* 37 (1964) 227-229.
Suggestions for Improving the Teaching of Solid Geometry. *Shoptaugh, John R.* 4:2 (1929) 3-12.
Suggestions for Reducing Mortality in Freshman Mathematics. *Heinzman, W.P.* 14 (1940) 211-213.
Sum] $\Sigma a_i b_j$. The Maximum of [the, *Wagstaff, Ronald and Tanner, Leslie R.* 37 (1964) 46-47.
Sum] $\Sigma k^3 = (\Sigma k)^2$. A Combinatorial Proof that [the, *Stein, Robert G.* 44 (1971) 161-162.
Sum of a Polynomial. The, *Feld, J.M.* 11 (1937) 213-216.
Sum of Digits of Integers in a Given Basis. An Identity for the, *Mauclaire, Jean-Loup.* 47 (1974) 225.
Sum of Integers in [Arithmetic Progressions]. An Arithmetical Problem Involving the, *Young, Samuel S.H.* 43 (1970) 89-92.

Sum of Odd Reciprocals. Expressing One as a, *Barbeau, E.J.* 49 (1976) 34; *Comment* 49 (1976) 103, 155-156.
Sum of Squares. A Note on the, *Sutcliffe, Alan.* 36 (1963) 221-223.
Sum of Squares is a Perfect Square. Consecutive Integers Whose, *Alfred, Brother U.* 37 (1964) 19-32; *Sequels* 37 (1964) 218-220; 40 (1967) 194-199; 41 (1968) 255-258.
Sum of Squares is a Perfect Square. Note on Consecutive Integers Whose, *Philipp, Stanton.* 37 (1964) 218-220; *Comment* 38 (1965) 106.
Sum of Squares]. Note on a Problem [on, *Morris, Richard.* 7:3 (1932) 19-20.
Sum of the Factorials of Their Digits. Integers and the, *Poole, George D.* 44 (1971) 278-279; *Comment* 45 (1972) 278.
Sum of Two Squares. The Representation of a Gaussian Integer as a, *Mordell, L.J.* 40 (1967) 209.
Sum] $\Sigma_{n=1}^{\infty}(1/n^{2k})$. On [the, *Williams, Kenneth S.* 44 (1971) 273-276.
Sum] $\Sigma 1/k^2 = \pi^2/6$. Still Another Elementary Proof that [the, *Giesy, Daniel P.* 45 (1972) 148-149.
Sum] $\Sigma_{x=1}^{x=n} x^p$. A Formula for [the, *Rosenbaum, J.* 14 (1940) 193-196.
Summability. An Application of Fejér, *Straiton, A.W.* 18 (1943) 106-107.
Summability of Series. Application of the Summation by Parts Formula to, *Fort, Tomlinson.* 26 (1953) 199-204.
Summable Power Series. Ideals of Square, *Rovnyak, James.* 33 (1960) 265-270; *Correction* 34 (1960) 41-42.
Summation by Parts Formula to Summability of Series. Application of the, *Fort, Tomlinson.* 26 (1953) 199-204.
Summation of Certain Types of Finite Series. On the, *Niessen, A.M.* 18 (1944) 271-275.
Summation of Finite Series with Polynomial Terms. *Farnell, Albert B.* 17 (1942) 68-69.
Summation of Infinite Series. Shortcut to, *Ehrenburg, D.O.* 39 (1966) 93-96.
Summation of Power Series. On the, *Michalup, Eric.* 24 (1951) 129-133.
Summation of Series. Application of Fourier Series to, *Edstrom, Clarence R.* 40 (1967) 214-216.
Summation of Series by the Residue Theorem. *Ricardo, Henry J.* 44 (1971) 24-26.
Summations With Binomial Coefficients. The Evaluation of, *Nowlan, F.S.* 34 (1961) 161-163.
Summing Divergent Series. A New General Method of, *James, Glenn.* 22 (1949) 235-244.
Summing Series]. Insights or Trick Methods [for, *O'Toole, A.L.* 15 (1940) 35-38.
Summing Series Whose General Terms are Polynomials. *Miser, Wilson L.* 6:7 (1932) 17-19.
Sums and Sums of Powers. Powers of, *Piza, Pedro A.* 25 (1952) 137-142.
Sums. Integrals and Equal Division, *Morduchow, Morris.* 27 (1953) 65-68.
Sums Involving Binomial Coefficients. Note on, *Daus, P.H.* 10 (1936) 165-166.
Sums of Arithmetic Progressions. Representations of Positive Integers as, *Andrushkiw, Joseph W., Andrushkiw, Roman I. and Corzatt, Clifton E.* 49 (1976) 245-248.
Sums of Consecutive kth Powers, k = 1,2. On, *Ewell, John A.* 48 (1975) 203-207.
Sums of Inverses of Primes. On, *Jordan, J.H.* 38 (1965) 259-262.
Sums of Odd Composite Integers. On Representing Integers as, *Vaidya, A.M.* 48 (1975) 221-223.
Sums of Powers. *Tepper, Myron D.* 38 (1965) 17-19.
Sums of Powers. Products of, *Nathanson, Melvyn B.* 48 (1975) 112-113.
Sums of Squares. Consecutive Integers Having Equal, *Vigder, J.S.* 38 (1965) 35-42.
Sums of Squares. n and n + 1 Consecutive Integers with Equal, *Alfred, Brother U.* 35 (1962) 155-164.
Sums of Squares of Consecutive Odd Integers. *Alfred, Brother U.* 40 (1967) 194-199; *Sequels* 41 (1968) 255-258; 42 (1969) 145; 43 (1970) 212-213.
Sums of Squares of Consecutive Odd Integers. A Note on, *Hunter, J.A.H.* 42 (1969) 145.
Sums of Squares of Consecutive Odd Integers" by Brother U. Alfred. Remark on the Paper ", *Makowski, Andrzej.* 43 (1970) 212-213; *Comments* 44 (1971) 242; 45 (1972) 279.
Sums of Squares of Consecutive Odd Integers. Note on, *Sollfrey, William.* 41 (1968) 255-258.
Sums of Three Squares in [the Ring] GF[q,x]. A Note on, *Carlitz, Leonard.* 48 (1975) 109-110.
Sums of Two Squares. *Ransom, William R.* 22 (1949) 220-222.
Sums. Sequences of kth Powers with kth Power Partial, *Klarner, David A.* 37 (1964) 165-167.
Sums with Elements in Common Be Linear. Necessary and Sufficient Conditions That Regression Systems of, *Wei, Dzung-Shu.* 17 (1943) 151-158.
Sundial Design. The Ellipse in Eighteenth Century, *Dolan, W.W.* 45 (1972) 205-209.
Sundials and the Discovery of the Conic Sections. Early, *Dolan, W.W.* 45 (1972) 8-12.
Superior Student. Interesting the, *Sleight, E.R.* 10 (1935) 58-62.

Supplementary Angles: A New Look. Bisectors of, *Lariviere, R.* 33 (1959) 25-26.
Supplementary Note on Solutions of Cubic Equations on a Slide Rule. A, *Schwartz, Benjamin L.* 32 (1958) 41-43.
Surety, A Sequel. The Parabola of, *Butchart, J.H.* 28 (1955) 229-230.
Surety by R.F. Graesser in V. 27, No. 4. Concerning the Parabola of, *Russell, Dennis C.* 28 (1954) 52-54.
Surety. The Parabola of, *Graesser, R.F.* 27 (1954) 204; *Comments* 28 (1954) 52-54; 28 (1955) 229-230.
Surface: *see also* Quadric.
Surface of a Sphere in an N-Dimensional Euclidean Space. Volume and, *Zatzkis, Henry.* 30 (1957) 155-158.
Surface of a Sphere. On Fermat's Problem on the, *Cockayne, E.J.* 45 (1972) 216-219.
Surface of a Sphere. The Peaucellier Linkage on the, *Goldberg, Michael.* 38 (1965) 308-311.
Surface. On Wrapping of a Closed, *Glauz, R.D.* 42 (1969) 27-28.
Surface. The Notion of Area of, *Smith, H. L.* 5:7 (1931) 36-43.
Surfaces: A Study of Finite 2-Complexes. Finite, *Whittlesey, E.F.* 34 (1960) 11-22, 67-80.
Surfaces. Combinatorial Topology of, *James, Robert C.* 29 (1955) 1-39.
Surfaces in Quasi-Quasi Space [Satire]. On Some π-Hedral, *Hopper, Claude.* 41 (1968) 89-90.
Surfaces Invariant Under the Symmetric G_{120} with Special Reference to Quintics and Sextics. Algebraic, *Walden, Earl.* 15 (1941) 163-172.
Surfaces of Revolution. On Ruled and Developable, *Klamkin, Murray S.* 27 (1954) 207-209.
Surfaces. Two Groups Associated with Ruled, *Sweet, Frank H.* 39 (1966) 205-208.
Surprises. Four Mathematical [Number], *Anning, Norman.* 36 (1963) 80.
Survey of Present Status of Secondary Mathematics in the United States. *Sanders, S.T.* 9 (1934) 3-9, 35-42.
Surveying]. A Unit in Field Mathematics [:, *McCall, Geraldine.* 6:3 (1931) 7-12.
Sutcliffe. Note on a Problem [on Integers] of Alan, *Kaczynski, T.J.* 41 (1968) 84-86.
Switching Circuits. A Mathematical Theory of, *Nemitz, William and Reeves, Roy F.* 33 (1959) 1-6.
Switching Nets. Boolean Matrices and, *Chen, Wai-Kai.* 39 (1966) 1-8.
Sylvester Problem. Generalizations of the, *Edelstein, M.* 43 (1970) 250-254.
Sylvester's Matrix and the Greatest Common Divisor. Another Theorem Relating, *Laidacker, Michael A.* 42 (1969) 126-128.
Sylvester's Problem on Collinear Points. *Crowe, D.W. and McKee, Terry A.* 41 (1968) 30-34.
Symbol and Parentheses Symbols in Associative Distributive Algebra. On the Use of the Equivalence, *Vandiver, H.S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Symbol, The Concept, The Number. Zero: The, *Boyer, Carl B.* 18 (1944) 323-330.
Symbol]. The Origin of a Mathematical Concept [: The, *James, Glenn.* 7:5 (1933) 3-6.
Symbolic Logic. Introducing, *Dimmick, Edgar L.* 30 (1956) 18-24.
Symbolic Method for Finding Integrals of Linear Difference and Differential-Difference Equations. A, *Cooke, Kenneth L.* 31 (1958) 121-126.
Symbolism. On the Origin of Cartesian, *Pogorzelski, H.A.* 33 (1960) 184.
Symbolism [Satire]. A Real-Life Application of Mathematical, *Redheffer, R.M.* 38 (1965) 103-104.
Symbols. New Meanings for Old, *Diamond, Louis E.* 29 (1956) 209-216.
Symmedian Point. Minimum Property of the, *Butchart, J.H.* 22 (1949) 165-166.
Symmetric Correspondence $C_{2,2}$ and a Relation Connecting Them. Two Ways of Setting Up the, *Burke, Sister Leonarda.* 16 (1941) 29-33.
Symmetric Functions. An Application of the Method of Undetermined Coefficients to, *Smith, H.L.* 7:1 (1932) 17-20.
Symmetric Functions. Remarks on the Elementary, *Ellis, David.* 32 (1958) 75-78.
Symmetric Functions. Resultants and, *Sisam, C.H.* 9 (1934) 46-52.
Symmetric G_{120} with Special Reference to Quintics and Sextics. Algebraic Surfaces Invariant Under the, *Walden, Earl.* 15 (1941) 163-172.
Symmetric Groupoids and Rings. *Duncan, R.L. and Duncan, Hilda F.* 44 (1971) 127-133.
Symmetrical Types of Convex Regions. *Sobczyk, Andrew.* 29 (1956) 175-192.
Symmetries for Conditioned Ruin Problems. *Beyer, W.A. and Waterman, M.S.* 50 (1977) 42-45.
Symmetries of the Cayley Group Table. *O'Neill, John D.* 47 (1974) 146-149.
Symmetries of the Trihexaflexagon. *Gilpin, Michael.* 49 (1976) 189-192.
Symmetries. Quartic Equations and Tetrahedral, *Chalkley, Roger.* 48 (1975) 211-215.
Symmetry. Polar, *Lariviere, R.* 28 (1955) 270.
Symmetry. The Economy of, *McGiffert, James.* 12 (1938) 210-212.

Synthesized by Number Theory. Resistance Circuits and Things, *Benson, Arne.* 34 (1961) 125-130; *Comment* 34 (1961) 233.
Syracuse. The Mathematics Meeting of Hamilton, Colgate and, *Aude, H.T.R.* 10 (1935) 100-101.
System of Circles. On a, *Crain, Karleton W.* 10 (1936) 302-303.
Systematic Method of Finding Pythagorean Numbers. A, *Goodrich, Merton Taylor.* 19 (1945) 395-397.
Systems of Equations, Matrices and Determinants. *Taussky, Olga and Todd, John.* 26 (1952) 9-20, 71-88.
Systems of Particles with a Common Centroid. *Eves, Howard.* 28 (1954) 1-7.

T

T_2 and T_3. [Topologies] Between, *Sims, B.T.* 40 (1967) 25-26.
Tables. Some Probability Estimates From Contingency, *Smith, C.D.* 25 (1951) 59-62.
Taking Limits Under the Integral Sign. *Cunningham, F., Jr.* 40 (1967) 179-186.
Talmudic Approach to the Area of a Circle. A, *Epstein, Sheldon and Hochberg, Murray.* 50 (1977) 210.
Tangency Problem. A, *O'Quinn, R.L.* 3:6 (1929) 20-21.
Tangency. Problem of, *O'Quinn, R.L.* 3:7 (1929) 20-22.
Tangent Circles. An Invariant Relation in Chains of, *Michiwaki, Yoshimasa, Ōyama, Makoto and Hamada, Toshio.* 48 (1975) 80-87.
Tangent Line Segments. Areas Swept Out by, *Hammer, Preston C.* 28 (1954) 65-70.
Tangent Outside the Curve. *Ransom, William R.* 37 (1964) 340-341.
Tangent Plane. Two Definitions of, *Long, Clifford A.* 44 (1971) 212-214.
Tangent Planes and Differentiation. *Roetman, E.L.* 43 (1970) 1-7.
Tangents: An Elementary Survey. *Thurston, Hugh.* 42 (1969) 1-11.
Tangents. Descartes' Method of, *Miser, Wilson L.* 7:7 (1933) 16-21.
Tangents. One Side, *Ransom, William R.* 29 (1956) 159-160.
Tangents to Curves of Even Degree. On, *Parker, W. Vann.* 6:3 (1931) 17-20.
Tannery's Theorem. *Boas, Ralph P., Jr.* 38 (1965) 66.
Tarry-Escott Problem. Applications of an Operator to Algebra and to Number-Theory, with Comments on the, *Grossman, Howard D.* 19 (1945) 385-390.
Tartaglia Controversy. Sidelights on the Cardan-, *Nordgaard, Martin A.* 12 (1938) 327-346.
Tax" Theorem. The "Sales, *Golomb, Solomon W.* 49 (1976) 187-189.
Taxes. A Problem in the Computation of State and Federal, *Thomson, J.F.* 12 (1938) 380-383.
Taylor and Fourier Expansions. Infinite Series and, *James, Robert C.* 25 (1952) 269-272; 26 (1952) 21-31.
Taylor Series for Functions of n Variables. On the Convergence of, *Day, James Thomas.* 40 (1967) 258-260.
Taylor Series. Mean Value Theorems and, *Spiegel, Murray R.* 29 (1956) 263-266.
Taylor's Formula and Stirling's Numbers. *Fort, Tomlinson.* 19 (1945) 163-170.
Tchebycheff Inequalities as a Basis for Statistical Tests. *Smith, C.D.* 28 (1955) 185-195.
Teach Our Students About Mathematics. We Should, *McCreery, Louis R.* 34 (1961) 153-155.
Teacher Education. Implications of the New High School Mathematics Programs for, *Ringenberg, Lawrence A.* 35 (1962) 229-234.
Teacher. Mathematics in a World at War--A Challenge to Mathematics, *Zant, James H.* 18 (1943) 77-80.
Teachers for the Secondary School. Questions in Educating Mathematics, *Olds, Edwin G.* 14 (1940) 271-277.
Teachers] Look Before and After." "We [, *Stark, Marion E.* 18 (1943) 116-119.
Teachers of College Mathematics. Educational Interests of, *Georges, J.S.* 16 (1941) 89-90.
Teachers. The Education of Mathematics, *Schaaf, William L.* 13 (1938) 83-89.
Teaching a Unit in Plane Geometry. On, *Congleton, James Edmund.* 7:4 (1933) 16-21.
Teaching. An Experiment in Cooperative, *Weaver, J.H.* 11 (1937) 268-273.
Teaching and Popularizing Mathematics. B.F. Thibaut [1775-1832], Early Master of the Art of, *Dunnington, G. Waldo.* 11 (1937) 318-323.
Teaching Centroids and Moments of Inertia Simultaneously. *Kaltenborn, H.S.* 16 (1942) 299-304.
Teaching College Mathematics. A Method of Measuring Effectiveness in, *Hassler, J.O.* 19 (1944) 73-77.
Teaching. Five Requirements for Good, *Krathwohl, W.C.* 22 (1948) 47.
Teaching Geometry. Visual Aids in, *Hoag, Jessie May.* 14 (1939) 153-159.
Teaching] in Developing Reflective Thinking. The Heuristic Method Versus the Lecture Method [of, *Forno, Dora M.* 5:7 (1931) 3-5.
Teaching in Japan, by M. Kuniyeda. A Report on Present Tendencies in the Development of Mathematical, *Seidlin, Joseph.* 11 (1937) 231-240.
Teaching in the Schools of This Country. The Place of Mathematics and its,

Seidlin, Joseph. 10 (1936) 304-307; 11 (1936) 24-45, 147-151.
Teaching Inverse Trigonometric Functions. *Potter, Raymond S.* 34 (1961) 281-282.
Teaching Mathematics. *Moulton, E.J.* 10 (1936) 175.
Teaching Mathematics for Discipline. On, *Webber, W. Paul.* 7:1 (1932) 10-14; *Sequel* 7:2 (1932) 7-8.
Teaching Mathematics. The Aesthetic in, *Webber, W. Paul.* 4:5 (1930) 11-15.
Teaching Mathematics to the A.A.F. College Training Detachment (Air Crew). *Zant, James H.* 18 (1944) 234-242.
Teaching Mathematics? What is Essential in, *Blumberg, Henry.* 12 (1938) 393-402.
Teaching Note. A, *Tyson, George.* 36 (1963) 105; *Comment* 36 (1963) 258.
Teaching of College Mathematics. Improving the, *Beenken, May M.* 8 (1934) 97-103.
Teaching of Mathematical Induction. Note on the, *Carlson, C.S.* 19 (1944) 36.
Teaching of Mathematics. A Reflective Approach in the, *Johnson, Charles A.* 26 (1952) 35-38.
Teaching of Mathematics in High Schools and Colleges. Coordinating the, *Gunder, Dwight F.* 15 (1941) 248-250.
Teaching of Mathematics. Next Steps in Education and in the, *Betz, William.* 18 (1944) 153-176.
Teaching of Mathematics. Proposal for the Improvement of the, *Barnett, I.A.* 9 (1934) 74-81.
Teaching of Mathematics. The Most Important Objective in the, *Gisonti, Frank.* 27 (1953) 37-38.
Teaching of Secondary School Mathematics. Trends in the, *Bennett, Albert A.* 18 (1944) 315-322.
Teaching of Solid Geometry. Suggestions for Improving the, *Shoptaugh, John R.* 4:2 (1929) 3-12.
Teaching of the Derivative. Difference Quotients and the, *Zlot, William Leonard.* 36 (1963) 63-64.
Teaching of the History of Mathematics. The Study and, *Mitchell, U.G.* 13 (1938) 22-29.
Teaching of the Linear Equation. Concerning the, *Richert, D.H.* 11 (1937) 382-384.
Teaching of the Trigonometric Functions of Half and Double Angles. On the, *Woods, Roscoe.* 8 (1934) 108-111.
Teaching Procedure. Minutiae in, *Anonymous.* 10 (1936) 175-177.
Teaching Procedures. As to, *Weaver, J.H.* 10 (1936) 141-142.
Teaching. Professor Seidlin's Questionnaire on Mathematics, *Sanders, S.T.* 11 (1936) 2.
Teaching Pupils to Apply the Mechanics of Arithmetic to the Solution of Problems. Comparison of Two Methods of, *Will, Alma.* 5:2 (1930) 3-10.
Teaching Subtraction of Signed Numbers. *Cole, Lena R.* 7:2 (1932) 6.
Teaching the Calculus. *Dragoo, R.C.* 19 (1945) 186-193.
Teaching the Concept of Directional Derivative. *Olds, Edwin G.* 10 (1936) 268-275.
Teaching the Conic. *Smith, C.D.* 17 (1942) 79-80.
Teaching the Fundamentals of Mathematics. *Tripp, M.O.* 17 (1943) 225-227.
Teaching Trigonometry. Matrices in, *Amir-Moéz, Ali R.* 37 (1964) 78-81.
Teaching Trigonometry Through Vectors. *Amir-Moéz, Ali R.* 32 (1958) 19-23.
Teams. Pairing, *Davis, Edmund E.* 32 (1958) 99-100.
Temple's Trigonometric and Hyperbolic Analogies. Remarks on, *Simmons, H.A.* 14 (1940) 455-458.
Tennis. Optimal Strategy for Serving in, *Gale, David.* 44 (1971) 197-199.
Tensor Algebra and Invariants. *Wade, T. L.* 19 (1944) 3-10; 20 (1945) 5-10.
Tensors. A Remark on the Quotient Law of, *Pan, T.K.* 28 (1955) 197-198.
Tensors. Norm Preserving Operators on Decomposable, *Bronson, Richard.* 46 (1973) 100.
Tensors. On the Structure of Certain, *Craig, Homer V.* 21 (1947) 21-29.
Tensors with the Aid of Symbolic Multiplication. Calculation of a Complete System of, *Robinson, Lewis Bayard.* 31 (1957) 5-14.
Tenth Lesson in the History of Mathematics. A, *Miller, G.A.* 19 (1945) 286-293.
Tepper's Factorial Conjecture. Proof of, *Long, Calvin T.* 38 (1965) 304-305.
Tepper's Identity. Another Proof of, *Papp, F.J.* 45 (1972) 119-121.
Terminal Digits of $MN(M^2-N^2)$. *Trigg, Charles W.* 34 (1961) 159-160; *Correction* 34 (1961) 233-235.
Terminology. Society for the Improvement of Mathematical Notation and, *Hyers, D.H.* 32 (1959) 203-206.
Tessellations. Two Tromino, *Trigg, Charles W.* 35 (1962) 176.
Tesseract, $(a+b)^4$: A Demonstration of the Binomial Theorem in Fourth Dimensional Geometry. The, *Herbert, Harriet B.* 15 (1940) 97-99.
Test for Alternating Series. On a Convergence, *Lariviere, R.* 29 (1955) 88.
Test for Divisibility by the Use of a Remainder Function. *Draim, N.A.* 31 (1958) 137-140.
Test for the Rank of a Matrix. *Brand, Louis.* 33 (1960) 277-278.
Test. The Construction and Use of a Ma-

thematics Placement, *Gere, Brewster H.* 16 (1942) 400-406.
Testing Program in Mathematics. The Use of Medians in a, *Reklis, Virginia Modesitt.* 16 (1942) 345-349.
Tests in Mathematics. Construction of Objective, *Ballard, Ruth M.* 16 (1941) 150-156.
Tests or Barbarous Parodies of the Barber's Paradox... . On the Construction of Multiple Choice, *Anonymous.* 43 (1970) 213-214.
Tests. Standard, *Schmidt, Sophie.* 6:1 (1931) 6-9.
Tetrahedral Symmetries. Quartic Equations and, *Chalkley, Roger.* 48 (1975) 211-215.
Tetrahedron. A Configuration Associated with a, *Peters, J.W.* 14 (1939) 67-75.
Tetrahedron. Note on the Volume of a, *Smith, H.L.* 6:4 (1932) 23-24.
Tetrahedron. Orthogonal, *Mandan, Sahib Ram.* 31 (1958) 127-131.
Tetrahedron. Spheres Associated With a, *Thébault, Victor T.* 26 (1952) 33-34.
Textbooks, Reference Books or Story Books. *Montague, Harriet F.* 11 (1936) 152-153.
Theodorus' Irrationality Proofs. *McCabe, Robert L.* 49 (1976) 201-203.
Theorem: *see also* Binomial, Fixed Point, Implicit Function, Mean Value, Pythagorean, Taylor.
Theorem about Primes Proved on a Chessboard. A, *Larson, Loren C.* 50 (1977) 69-74.
Theorem Analogous to Morley's Theorem. A, *Demir, Huseyin.* 38 (1965) 228-230.
Theorem Concerning Prime Numbers. A, *Crocker, Roger.* 34 (1961) 316, 344; *Comment* 35 (1962) 227.
Theorem Concerning the Bernstein Polynomials. A, *Gould, H.W.* 31 (1958) 259-264.
Theorem in Applied Linear Algebra. A, *Cvetkov, B.* 37 (1964) 148-152.
Theorem in Complex Variables and Applications. A Note on a, *Romer, Eugene M.* 35 (1962) 173-174.
Theorem of G.P. Barker on Triangular Matrices. On a, *Stojakovic, Mirko.* 44 (1971) 133-134.
Theorem of Morley. The, *Peters, J.W.* 16 (1941) 119-126.
Theorem of Schemmel. A, *Carlitz, Leonard.* 39 (1966) 86-87.
Theorem on an Inscribed Triangle. A, *Bottema, O.* 47 (1974) 34-36.
Theorem on Arc Length. A, *Kaucher, John.* 42 (1969) 132-133.
Theorem on Determinants. A, *Trigg, Charles W.* 34 (1961) 328.
Theorem on Proportion With Some Applications. A, *Smith, H.L.* 4:1 (1929) 20-22.
Theorem on Rational Zeros of a Polynomial. A, *Leighton, Walter.* 45 (1972) 156-158; *Comment* 45 (1972) 282.
Theoremes de geometrie elementaire. *Thébault, Victor T.* 14 (1940) 313-316.
Theorems. A Proof Schema for a Class of, *Rose, Gene F.* 25 (1951) 1-2.
Theorems on Quadratic Residues. *Whiteman, Albert Leon.* 23 (1949) 71-74.
Theorems, Their Converses and Their Extensions. *Court, Nathan Altshiller.* 17 (1943) 195-201.
Theory of Budgets Based on Parabolic Engel Curves. *Baker, G.A.* 26 (1952) 67-70.
Theory of Equations. A Note to the, *Aude, H.T.R.* 14 (1940) 308-310.
Theory of Functions of a Real Variable. The, *Green, John W.* 24 (1951) 209-217.
Theory of Numbers for Undergraduates. The, *Starke, Emory P.* 10 (1935) 53-57.
Theory of Numbers in America Today. The, *Christilles, William Edward.* 36 (1963) 188-189.
Theory of Roulettes and Glissettes. The, *Walker, Gordon.* 13 (1939) 223-229.
Theory of the Keuffel and Esser Logarithmic Spiral Curve. *Grummann, H.R.* 10 (1936) 167-170.
Therapy. Mathematics as a, *Cowle, Irving M.* 21 (1948) 285-286.
Thibaut [1775-1832], Early Master of the Art of Teaching and Popularizing Mathematics. B.F., *Dunnington, G. Waldo.* 11 (1937) 318-323.
Think-A-Dot. Mathematical Theory of, *Schwartz, Benjamin L.* 40 (1967) 187-193; *Sequel* 46 (1973) 128-136.
Think-A-Dot Revisited. *Beidler, John A.* 46 (1973) 128-136.
Thinking Aids in Intelligent Citizenship. Mathematical, *Kenny, Alice Patricia.* 27 (1953) 91.
Third Lesson in the History of Mathematics. A, *Miller, G.A.* 15 (1941) 234-244.
Third Order Magic Square. The, *Scott, Robert H.* 36 (1963) 263.
Thomas Fantet de Lagny. Notes on, *Nordgaard, Martin A.* 11 (1937) 361-373.
3 x 3 Matrices from Knight's Moves. *Trigg, Charles W.* 36 (1963) 36.
3-Bar Curve. A Note on the, *Yates, Robert C.* 14 (1940) 190-192.
Three Bodies in a Plane. On the Problem of, *Szebehely, Victor G.* 26 (1952) 59-66.
Three Body Problem. Similar Solutions to the Generalized Planar, *Garofalo, A. M.* 35 (1962) 277-281.
Three-Circle Problems in Modern Geometry. *Smith, C.D.* 14 (1940) 299-307.
Three Factory Problem. The, *Greenberg, Irwin and Robertello, Raymond A.* 38 (1965) 67-72.

Tidal Theory Upon the Development of Mathematics. The Influence of, *Bateman, H.* 18 (1943) 14-26.
Tilings by Regular Polygons. *Grünbaum, Branko and Shephard, Geoffrey C.* 50 (1977) 227-247.
Time Series. Successive Smoothings of a, *Adams, L.J.* 10 (1935) 18-19.
Time. The Origin and Development of Tables of Weight, Length and, *Sleight, E.R.* 19 (1945) 236-243.
Timing of High School Algebra as Related to Success in College Algebra. The, *Coleman, J. Bruce.* 6:4 (1932) 7.
Tit-Tat-Toe or Tit-Tat-Toe in Four Dimensions. Hyper-Spacial, *Funkenbusch, William W. and Eagle, Edwin L.* 19 (1944) 119-122.
Topological Genealogy. *Tiefenback, Michael.* 50 (1977) 158-160.
Topological Group Spaces. Functional Analysis in, *Michael, Aristotle D.* 21 (1947) 80-90.
Topological Representation of Groups. On, *Pitcairn, Joel.* 27 (1953) 92.
Topological Spaces--An Abstract. On the Solution of Equations in an Infinity of Unknowns in Linear, *Köthe, Gottfried.* 11 (1937) 185.
Topologies] Between T_2 and T_3. [, *Sims, B.T.* 40 (1967) 25-26.
Topology and Analysis. *Buck, R.C.* 40 (1967) 71-74.
Topology. Compactness in the Weak, *Brace, John Wells.* 28 (1955) 125-134.
Topology. Note on Convergence in, *Arens, Richard.* 23 (1950) 229-234.
Topology of Surfaces. Combinatorial, *James, Robert C.* 29 (1955) 1-39.
Topology]. On Recent Developments in Geometry [i.e., *Smith, C.D.* 5:7 (1931) 23-27.
Topology. Some Concepts of Elementary, *Hall, Dick Wick.* 22 (1949) 267-274.
Topology: The Continuity Concept. Extended, *Hammer, Preston C.* 36 (1963) 101-105.
Torsion Problem. A Note on the, *Higgins, Thomas James.* 16 (1941) 34-36.
Torsion Problem. Remarks on a Method for Solving the, *Higgins, Thomas James.* 17 (1942) 3-7.
Torsional Vibration of a System of Disks Attached to a Heavy Shaft. The [Differential Equation Model for], *Wylie, C.R., Jr.* 40 (1967) 86-91.
Torus. On a Particular Plane Section of the, *Konhauser, Joseph D.E.* 38 (1965) 161.
Torus]. Some Observations on the Anchor Ring [, *Parker, W. Vann.* 6:7 (1932) 19-21.
Totitives. Twelve and its, *Recamán Santos, Bernardo.* 49 (1976) 239-240; *Comment* 50 (1977) 107.
Tournament Seating Problem and Latin Squares. A Certain Bridge, *Ward, James A.* 29 (1956) 249-253.
Tournaments. The Group of the Composition of Two, *Alspach, Brian, Goldberg, Myron and Moon, J.W.* 41 (1968) 77-80.
Tours and Paths in Rectangular Lattice Graphs. Hamiltonian, *Thompson, Gerald L.* 50 (1977) 147-150.
Track. Beginning Statistics at the, *Cooke, W.P.* 46 (1973) 250-255.
Track of a Moved Line Segment. On the Minimum, *Goldberg, Michael.* 47 (1974) 257-267.
Tractrix in Non-Euclidean Geometry. Catenary and, *Fulton, Curtis M.* 27 (1953) 79-84.
Training of Mathematical Research Workers. The Early, *Sawyer, W.W.* 25 (1952) 226-228.
Training. Some Weaknesses in Mathematical, *Campbell, Alan D.* 12 (1938) 347-350.
Trajectories in a Combined Electric and Magnetic Field. Electron, *Morris, Chester R.* 30 (1957) 251-267.
Trajectory-Indicating Device. Comments on a, *Brenner, J.L.* 44 (1971) 92-94.
Transcendental Functions. Analogues for Arithmetical Functions of the Elementary, *Bell, E.T.* 21 (1947) 65-73.
Transcendental Functions. Elementary, *Speck, G.P.* 42 (1969) 200-202.
Transcendental p-adic Number. An Elementary Example of a, *Suter, Glen H.* 49 (1976) 42.
Transcendental Systems. Higher Order Approximations to Solutions of, *Maley, C.E.* 34 (1960) 97-99.
Transfer Distribution. The, *Freund, John E.* 25 (1951) 63-66.
Transfer Value [in Education] of Mathematics. The, *Shell, Lorraine.* 5:2 (1930) 10-13.
Transformation. A Generalization of the Legendre, *Buschman, R.G. and Damaskos, N.J.* 33 (1960) 185-191.
Transformation: A Simple Proof. The Probability Integral, *Schuster, Eugene F.* 49 (1976) 242-243.
Transformation Charts Used by Electrical Engineers. Conformal, *Mathis, H.F.* 36 (1963) 25-30.
Transformation Due to Gurney. A Special Case of a, *Adams, L.J.* 9 (1934) 53.
Transformation for Classes of Geometric Configurations. A, *Dilley, Norman R., Green, Thomas M. and Hamberg, Charles.* 42 (1969) 136-139.
Transformation. The Inversion of the Laplace, *Erdélyi, A.* 24 (1950) 1-6.
Transformations. A Note on Generalized Semilinear, *Dotson, W.G., Jr.* 43 (1970) 147-149.
Transformations and Optics. *Bergman, George M.* 34 (1961) 215-217.

Transformations. Normal Curve Areas and Geometric, *Gans, David.* 31 (1958) 205-206.
Transformations of a Conic into Itself. *Lundberg, G.H.* 32 (1958) 5-17.
Transformations. On a Group of Contact, *Sakellariou, Nilos.* 22 (1948) 13-18.
Transformations. On Point, *Verdina, Joseph.* 42 (1969) 187-193.
Transforms. Solution of Certain Linear Boundary Value Problems by Use of Finite, *Cell, John W.* 40 (1967) 200-206.
Transition Probabilities That Depend on Direction of Motion. Random Walk with, *Cohen, Leon.* 37 (1964) 248-250.
Translation and Rotation. The Straight Line Treated by, *May, Kenneth O.* 22 (1949) 211.
Transposable Integers. k-, *Kahan, Steven.* 49 (1976) 27-28; *Comment* 49 (1976) 102.
Transpose-Connectivity of Graphs. On the, *Kelly, Paul J. and Merriell, David.* 32 (1958) 1-3.
Transpose Mapping. Properties of the, *Hill, Richard D. and Bernet, Glenn H., Jr.* 50 (1977) 151-152.
Transversals. Point of Intersection of Triangle, *Bailey, D. Moody.* 37 (1964) 331-333.
Tree. Odd Path Sums in an Edge-Labeled, *Taylor, Herbert.* 50 (1977) 258-259.
Tree of Compositions. *Gabelman, Irving J.* 34 (1960) 95-96.
Tree of Knowledge Getting Top-Heavy? Is the, *Emery, Delbert F.* 19 (1945) 359-362.
Trends in Education. *Robinson, P.G.* 17 (1943) 221-224.
Trends in the Teaching of Secondary School Mathematics. *Bennett, Albert A.* 18 (1944) 315-322.
Triangle: *see also* Morley's.
Triangle. A Generalization of Euler's Relation in the, *Goormaghtigh, R.* 15 (1941) 230-231.
Triangle. A Ruler and Compass Mapping Problem Associated with the Equilateral, *Hinrichsen, J.J.L.* 14 (1939) 141-143.
Triangle. A Theorem on an Inscribed, *Bottema, O.* 47 (1974) 34-36.
Triangle. An Exact Perimeter Inequality for the Pedal, *Zirakzadeh, A.* 39 (1966) 96-99.
Triangle. An Inequality for the Perimeter of the Orthic, *Carlitz, Leonard.* 39 (1966) 289.
Triangle. Analytic Geometry of the, *Gentry, F.C.* 16 (1941) 127-140.
Triangle and an Inequality of Euler. The Orthic, *Chakerian, G.D.* 46 (1973) 219-220.
Triangle and Its Related Circles. A Note on Line Segments Connected with a, *Lewis, F.A.* 21 (1947) 42-43.
Triangle Area Formula Implies the Parallel Postulate. The, *Shene, C.K.* 45 (1972) 269-272.
Triangle. Euclidean Concomitants of the, *Wade, T.L.* 17 (1943) 335-340.
Triangle" for Hyperbolic Functions. A "Reference, *Van Voorhis, W.* 29 (1956) 157-158.
Triangle Geometry in the Kasner Plane. Some Analogs of the, *Chi-Ho, Loong.* 17 (1942) 8-12.
Triangle. Geometry of the Imaginary, *Ramler, O.J.* 24 (1951) 203-206.
Triangle. Homologous Point in the Medial, *Bailey, D. Moody.* 39 (1966) 236-239.
Triangle Into 5 Triangles Similar To It. Partitioning a, *Usiskin, Zalman and Wayment, Stanley G.* 45 (1972) 37-42.
Triangle is Inscribed in Another. Inequalities Concerning the Areas Obtained When One, *Rigby, J.F.* 45 (1972) 113-116.
Triangle Made by N Points in a Square. Maximizing the Smallest, *Goldberg, Michael.* 45 (1972) 135-144.
Triangle. Notable Points Associated with a, *Peters, J.W.* 13 (1938) 122-126.
Triangle. Notes on Two Curves Associated with a Variable, *Vest, M.L.* 13 (1939) 215-222.
Triangle. On a Cubic Curve Associated With a, *Weaver, J.H.* 11 (1937) 293-296.
Triangle. On Boundary Values for Area of a, *Smith, C.D.* 4:8 (1930) 7-9.
Triangle. On Certain Polynomials Associated with the, *Blundon, W.J.* 36 (1963) 247-248.
Triangle. On Lines of a, *Parker, W. Vann.* 7:2 (1932) 12-13.
Triangle. On the Cevians of a, *Court, Nathan Altshiller.* 18 (1943) 3-6.
Triangle. Proof of the Theorem on the Intersection of the Medians of a, *Canady, E.F.* 21 (1948) 289.
Triangle. Some New Properties of the, *Lu, C.S.* 19 (1945) 398-405.
Triangle. Some Reflective Geometry of the, *Bailey, D. Moody.* 33 (1960) 241-259.
Triangle. The Geometry of the Circular Horn, *Kasner, Edward and Kalish, Aida.* 18 (1944) 299-304.
Triangle. The Heptagonal, *Bankoff, Leon and Garfunkel, Jack.* 46 (1973) 7-19.
Triangle. The Ubiquitous [Pythagorean] 3:4:5, *Bankoff, Leon and Trigg, Charles W.* 47 (1974) 61-70.
Triangle Transversals. Point of Intersection of, *Bailey, D. Moody.* 37 (1964) 331-333.
Triangle. Triangulation of a, *Bloch, A.* 37 (1964) 242-247.

Triangles. A Chart of Integral Right, *Ross, W. Bruce.* 23 (1949) 110-114.
Triangles. A Problem of Three Desarguean Pairs of, *Hsu, Chen-Jung.* 40 (1967) 255-258.
Triangles. Almost Congruent, *Jones, Robert T. and Peterson, Bruce B.* 47 (1974) 180-189; *Comment* 48 (1975) 177.
Triangles]. Analytical Solution of an Interesting Problem [about, *Cole, Jas. P.* 4:6 (1930) 18-20.
Triangles and Parallelograms. Rational, *Daykin, D.E.* 38 (1965) 46-47.
Triangles. Duality in Spherical, *Klamkin, Murray S.* 46 (1973) 208-211.
Triangles. Evaluation of a Limit by a Sequence of, *Springer, C.E.* 18 (1944) 185-187.
Triangles. Generalizations of Theorems About, *Allendoerfer, Carl B.* 38 (1965) 253-259.
Triangles in Chromatic Graphs. Disjoint, *Moon, J.W.* 39 (1966) 259-261.
Triangles Inscribed in a Convex Curve. Minimum, *Chakerian, G.D. and Klamkin, Murray S.* 46 (1973) 256-260.
triangles isoscelès semblables. Quadrangle bordé de, *Thébault, Victor T.* 18 (1943) 7-13.
Triangles. On "Rotating" Ellipses Inside, *Evans, Leonard.* 44 (1971) 28-33.
Triangles on the Slide Rule. Solution of, *Harris, V.C.* 31 (1957) 95-97.
Triangles. Primitive Integral, *Aude, H. T.R.* 16 (1942) 280-283.
Triangles. Sextant and Bi-Sextant, *Mitchell, B.E.* 5:1 (1930) 19-24, 15-18.
Triangles. Similar, *Mauldon, J.G.* 39 (1966) 165-174.
Triangles. Some Inequalities for Two, *Carlitz, Leonard.* 45 (1972) 43-44.
Triangles. The Perimetric Bisection of, *Avishalom, Dov.* 36 (1963) 60-62.
Triangles with Integers. Building, *Robinson, L.V.* 17 (1943) 239-244.
Triangles with One Interior Point. Geoboard, *Weaver, Charles S.* 50 (1977) 92-94.
Triangular Array of Scalars. The Tritrix, A, *Stein, F. Max.* 36 (1963) 143-146.
Triangular Matrices and the Cayley-Hamilton Theorem. *Barker, George Phillip.* 44 (1971) 34-36.
Triangular Matrices. On a Theorem of G.P. Barker on, *Stojakovic, Mirko.* 44 (1971) 133-134.
Triangular Numbers. On the Squares of Some, *Piza, Pedro A.* 23 (1949) 15-16.
Triangulation of a Triangle. *Bloch, A.* 37 (1964) 242-247.
Triangulations and Pick's Theorem. *Gaskell, Robert W., Klamkin, Murray S. and Watson, P.* 49 (1976) 35-37; *Comment* 49 (1976) 105, 158.
Trigg's Table. An Extension of, *Kravitz, Sidney and Penney, David E.* 48 (1975) 92-96.
Trigonometric and Exponential Functions. Newtonian Analogues of the, *Fort, Tomlinson.* 40 (1967) 5-12.
Trigonometric and Hyperbolic Analogies. Remarks on Temple's, *Simmons, H.A.* 14 (1940) 455-458.
Trigonometric and Hyperbolic Functions of a Complex Variable. Remarks on the Inverse, *Pennisi, Louis L. and Sjoblom, L.* 33 (1959) 39-42.
Trigonometric and Hyperbolic Functions. Some Functions Analogous to, *Temple, V.B.* 13 (1939) 263-271.
Trigonometric] Equation a cos θ + b sin θ = c. A Graphic Solution of the [, *Aude, H.T.R.* 10 (1935) 99.
Trigonometric] Equation x = tan x. Complete Approximate Solutions of the [, *Frankel, Sidney.* 11 (1937) 177-182.
Trigonometric, Exponential and Logarithmic Functions. Off the Beaten Path with Some Differentiation Formulas for the, *Eaves, James Clifton.* 26 (1953) 147-152.
Trigonometric Functions. A Geometric Representation of the Quasi-, *Hapke, Larry and Stein, F. Max.* 40 (1967) 111-120.
Trigonometric Functions of Half and Double Angles. On the Teaching of the, *Woods, Roscoe.* 8 (1934) 108-111.
Trigonometric Functions. Rational Approximations for, *Cheney, Wm. Fitch, Jr.* 19 (1945) 341-342.
Trigonometric Functions. Teaching Inverse, *Potter, Raymond S.* 34 (1961) 281-282.
Trigonometric Functions. The Derivatives of the, *Pascual, Michael J.* 31 (1957) 39-40.
Trigonometric Identities. *Magid, Andy R.* 47 (1974) 226-227; *Comment* 48 (1975) 235.
Trigonometric Identities. A Decision Method for, *Chamberlin, Eliot and Wolf, James.* 27 (1953) 75-77.
Trigonometric Inequalities. *Byrne, William E.* 7:1 (1932) 14-17.
Trigonometric Inequalities. An Approach to, *Ehret, Harold.* 43 (1970) 254-257.
Trigonometric Integrals. Use of Hyperbolic Substitution for Certain, *Viertel, William K.* 38 (1965) 141-144.
Trigonometric Polynomials. Concerning Envelopes of Certain, *Whiteman, Russell A.* 38 (1965) 19-22.
Trigonometric Power Series. *Staib, John H.* 49 (1976) 147-148.
Trigonometric Ratios of π/5 and π/10. Values of the, *Dorwart, Harold L.* 17 (1942) 115-116.
Trigonometry. A Brief Treatment of Analytic, *Smith, H.L.* 2:1 (1927) 5-7.

Trigonometry]. A Discussion [about, *Smith, H.L.* 4:7 (1930) 14-15.
Trigonometry. A Generalization of, *Thielman, H.P.* 11 (1937) 349-351.
Trigonometry. A Problem of Presentation in, *Karpinski, Louis C.* 13 (1939) 240-241.
Trigonometry. An Analytic Treatment of Spherical, *Smith, H.L.* 7:6 (1933) 17-23.
Trigonometry. An Approach to, *O'Toole, A.L.* 13 (1939) 373-375.
Trigonometry. An Approach to Non-Euclidean, *Fulton, Curtis M.* 22 (1949) 255-262.
Trigonometry--An Emergency Course. Spherical, *McClenon, R.B.* 18 (1943) 32-36.
Trigonometry Based on a Central Conic. The, *Smith, H.L.* 5:7 (1931) 30-33; 9 (1934) 69-72.
Trigonometry Equation. A Note on a Certain, *Kennedy, E.C.* 11 (1937) 332.
Trigonometry from a Figure. Derivation of the Product Formulas of, *Thomas, Paul D.* 20 (1945) 93-94.
Trigonometry from the Historical View Point. Introduction to, *Webber, W. Paul.* 5:5 (1931) 14-17.
Trigonometry. Matrices in Teaching, *Amir-Moéz, Ali R.* 37 (1964) 78-81.
Trigonometry. Proofs of the Fundamental Theorems of Spherical, *Clark, C.E.* 21 (1948) 151-155.
Trigonometry. Sextantal, *Mitchell, B.E.* 5:5 (1931) 17-20.
Trigonometry. The Basic Concepts of, *Mazziotta, Estelle.* 22 (1949) 139-150.
Trigonometry. The First Printed Armenian Treatise on Geometry and, *Shaw, Allen A.* 10 (1936) 287-289.
Trigonometry. The Solutions of the Quadratic Equation Obtained by the Aid of the, *Aude, H.T.R.* 13 (1938) 118-121.
Trigonometry Through Vectors. Teaching, *Amir-Moéz, Ali R.* 32 (1958) 19-23.
Trigonometry. Vector Analysis and, *Byrne, William E.* 9 (1935) 130-134.
Trigonometry Without Angles. *Webber, W. Paul.* 5:1 (1930) 16-19.
Trihedron of a Curve. On a General, *Yannopoulos, Alex J.* 25 (1952) 189-190.
Trihexaflexagon. Symmetries of the, *Gilpin, Michael.* 49 (1976) 189-192.
Trinomial Coefficients. On the, *Keeney, R.L.* 42 (1969) 210-213.
Trinomial Equation in Infinite Series by the Method of Iteration. The Solution of the, *Hall, Newman A.* 15 (1941) 219-229.
Trinomial Equations in Terms of the Maximum Operation. On Explicit Solutions of Some, *Bellman, Richard.* 30 (1956) 41-44.
Triple Point. On the Rational Plane Quartic Curve with, *Arnold, H.E. and Parente, A.R.* 14 (1939) 138-140.
Triple Product of Vectors in Four-Space. A, *Williams, Michael Z. and Stein, F. Max.* 37 (1964) 230-235.
Triple Product Tables. *Jacobson, R.A.* 38 (1965) 109.
Trisecting an Angle, Pythagorean Theorem]. Two Mathematical Papers Without Words [, *Isaacs, Rufus.* 48 (1975) 198; *Comment* 49 (1976) 50-51.
Trisecting an Angle with Euclidean Tools. Proof of the Impossibility of, *Chen, Tzer-Lin.* 39 (1966) 239-241.
Trisecting the Angle. A Construction for, *Lightstone, A.H.* 35 (1962) 99-102.
Trisection. Line Motion and, *Yates, Robert C.* 13 (1938) 63-66.
Trisection of an Angle and X-Section of an Angle. A Method of, *Sheng, Hung Tao.* 42 (1969) 73-80.
Trisection of an Angle with Euclidean Tools. Approximate, *Chen, Tzer-Lin.* 39 (1966) 261-264.
Trisection of the General Angle. On the, *Webber, W. Paul.* 4:1 (1929) 22-24.
Trisection Problem, Chapters I-V. The, *Yates, Robert C.* 15 (1940) 129-142; 15 (1941) 191-202, 278-293; 16 (1941) 20-28; 16 (1942) 171-182.
Trisector. A, *Yates, Robert C.* 12 (1938) 323-324.
Tritangent Circles. Four Equal, *Bankoff, Leon.* 37 (1964) 48.
Tritrix, A Triangular Array of Scalars. The, *Stein, F. Max.* 36 (1963) 143-146.
Tromino Tessellations. Two, *Trigg, Charles W.* 35 (1962) 176.
Truth-Functional 3-Valued Logic. A Non-, *Grant, John.* 47 (1974) 221-223.
Truth-Value of {∀,∃, P(x,y)}: A Graphical Approach. The, *Kuehls, Ernest A.* 43 (1970) 260-261.
Tschirnhausen. On the Cubic of, *Weaver, J.H.* 16 (1942) 371-374.
Tutorial System in Freshman Mathematics in Albion College. Student, *Sleight, E.R.* 10 (1935) 101-103.
Tutorial Work in Mathematics at the University of Buffalo. *Montague, Harriet F.* 24 (1951) 207-208.
Twelve and its Totitives. *Recamán Santos, Bernardo.* 49 (1976) 239-240; *Comment* 50 (1977) 107.
23 [Combinations of] Colored Cubes. The, *Gridgeman, N.T.* 44 (1971) 243-252.
Twin Circles of Archimedes Really Twins? Are the, *Bankoff, Leon.* 47 (1974) 214-218.
Twins. Integral, *Brown, Bancroft H.* 29 (1956) 275-276.
Twisted Determinants That Sum to Zero. *Cohen, Joel E.* 37 (1964) 267-269.
Two and Two [Vectors] Are Not Always Four. *Lariviere, R.* 30 (1957) 273-275.

Two Constructions With a Two-Edged Ruler. *Olivier, Donald.* 36 (1963) 24.
Two Curves Associated with a Variable Triangle. Notes on, *Vest, M.L.* 13 (1939) 215-222.
Two-Dimensional Graphical Solution of Higher-Dimensional Linear Programming Problems. *Cooke, W.P.* 46 (1973) 70-76.
Two-Dimensional Lattices and Convex Domains. *Reich, Simeon.* 43 (1970) 219-220.
Two-Dimensional Power-Associative Algebras. *Wallace, E.W.* 43 (1970) 158-162.
Two Families of Parallelograms. *Crain, Karleton W.* 11 (1937) 304-309.
Two Famous Inequalities. On, *Lange, L.H.* 32 (1959) 157-160.
Two Forms of Mathematical Induction. *Schach, Arthur.* 32 (1958) 83-85.
Two Graphical Treatments of the Moment of Inertia of a Plane Lamina. *Holl, D.L.* 9 (1934) 18-21.
Two Groups Associated with Ruled Surfaces. *Sweet, Frank H.* 39 (1966) 205-208.
202 Octagons. The, *Chilton, Bruce L.* 40 (1967) 206-209.
Two Mathematical Papers Without Words [Trisecting an Angle, Pythagorean Theorem]. *Isaacs, Rufus.* 48 (1975) 198; *Comment* 49 (1976) 50-51.
Two Methods of Inverting Matrices. *Lightstone, A.H.* 41 (1968) 1-7.
Two Most Original Creations of the Human Spirit [Mathematics and Music]. The, *Mode, Elmer B.* 35 (1962) 13-20.
Two-Move Game. A, *Schwartz, Benjamin L.* 47 (1974) 190-197.
Two New Chapters in the Theory of Probability. On, *Fréchet, Maurice.* 22 (1948) 1-12.
Two Parametric Representations of a Circle in 3-Dimensional Euclidean Space. *Unger, Leo.* 37 (1964) 100-111.
Two Problems on Magic Squares. *Agnew, Elizabeth H.* 44 (1971) 13-15.
Two-Triangle Case of the Acquaintance Graph. The, *Harary, Frank.* 45 (1972) 130-135.
Two Tromino Tessellations. *Trigg, Charles W.* 35 (1962) 176.
Two Ways of Setting Up the Symmetric Correspondence $C_{2,2}$ and a Relation Connecting Them. *Burke, Sister Leonarda.* 16 (1941) 29-33.
Two Wentworths. [Biography:] The, *Gwinner, Harry.* 9 (1935) 165.
Type of Periodicity for Fibonacci Numbers. A, *Hoggatt, Verner E., Jr.* 28 (1955) 139-142.
Types of Elementary Equations. Some, *Denbow, Carl H.* 23 (1950) 137-141.
Types of Learning Products of Evaluation of Instruction. *Georges, J.S.* 16 (1941) 90-101.

U

Ubiquitous e. The, *Sawtelle, Peter G.* 49 (1976) 244-245.
Ubiquitous [Pythagorean] 3:4:5 Triangle. The, *Bankoff, Leon and Trigg, Charles W.* 47 (1974) 61-70.
Ueber die [History of] Quadraturen des Artus de Lionne. *Hofmann, Josef Ehrenfried.* 12 (1938) 223-230.
Ultrametric Geometry. A Strange, *Akst, George.* 49 (1976) 142-145.
Undergraduate Research. Difficulties in Proposing, *Brendan, Brother T.* 35 (1962) 297-299.
Undergraduates. Methods of Mathematical Proof for, *Stark, Marion E.* 16 (1942) 350-351.
Undetermined Coefficients to Symmetric Functions. An Application of the Method of, *Smith, H.L.* 7:1 (1932) 17-20.
Unequal Partitions of Integers. On, *Sugai, Iwao.* 33 (1960) 129-138; *Sequel* 34 (1960) 101-103.
Unification of Plane and Solid Analytic Geometry. The, *Wylie, C.R., Jr.* 13 (1939) 189-191.
Unified Freshman Mathematics. *Urner, S.E.* 25 (1951) 29-35.
Uniform Approximation of Real Continuous Functions on the Real Line by Infinitely Differentiable Functions. *Pursell, Lyle E.* 40 (1967) 263-265.
Uniform Continuity. A Sequence Approach to, *Staib, John H.* 40 (1967) 270-273.
Uniform Lipschitzianism. Local and, *Dotson, W.G., Jr.* 44 (1971) 103.
Unifying Elementary Mathematics by Means of Fundamental Concepts. *Charosh, Mannis.* 19 (1944) 78-90.
Unions and Intersections of Sets. The Application of a Function to, *McAllister, Byron L.* 42 (1969) 93-94.
Unique Differential Ratios And Curvilinear Coordinates. *Pyle, H. Randolph.* 33 (1960) 193-198.
Unique Factorization and Ideals. Integers, *Diamond, Louis E.* 30 (1956) 29-40.
Unique Prime Factorization and Lattice Points. *De Boor, Carl and Schoenberg, I.J.* 46 (1973) 198-203.
Unit Assignment in Algebra and Geometry. The, *Bostick, Lucille M. and Payne, William A.* [Erroneously]. 8 (1934) 76-80; *Reprinted* 162-167.
Unit in Field Mathematics [: Surveying]. A, *McCall, Geraldine.* 6:3 (1931) 7-12.
Unit in Graphs. A, *McCall, Geraldine.* 6:4 (1932) 3-6.
Unitary Matrices. The Exponential Representation of, *Rinehart, R.F.* 37 (1964) 111-112.

Unitary, Orthogonal and Hermitian Operators to a Given Operator. Closest, *Keller, Joseph B.* 48 (1975) 192-197.
United States Rule With the Merchant's Rule for Computing the Maturity Value of a Note on Which Partial Payments Have Been Made. A Comparison of the, *Barnett, Joseph, Jr.* 23 (1949) 24-26.
United States. Warren Colburn and His Influence on Arithmetic in the, *Richeson, A.W.* 10 (1935) 73-79.
Unity. On Roots of, *Shover, Grace.* 15 (1941) 232-233.
Unity Ratios. Applications of, *Luter, J.G.* 33 (1959) 30-32.
Universe. The Expanding, *Nassau, J.J.* 8 (1933) 56-58.
Unpublished Mathematical Manuscripts in American Libraries. *Richeson, A.W.* 13 (1939) 183-188.
Upper Bounds on the Moduli of the Zeros of a Polynomial. *Riddell, R.C.* 47 (1974) 267-273.
Urysohn Metrization Theorem. A Short Proof of the, *Meyer, Paul R.* 43 (1970) 268-269.
Urysohn's Lemma and Related Theorems by Means of Zorn's Lemma. Proofs of, *Blair, Robert L.* 47 (1974) 71-78.
Use of Complex Numbers. On the, *Webber, W. Paul.* 4:4 (1929) 15-16.
Use of Conics in Airplane Design. The, *Adams, L.J.* 25 (1952) 195-202.
Use of Discriminants. A Note on the, *Horton, Robert E.* 23 (1950) 247-248.
Use of Hyperbolic Substitution for Certain Trigonometric Integrals. *Viertel, William K.* 38 (1965) 141-144.
Use of Index Numbers in Evaluation. The, *Erskine, William H.* 16 (1942) 252-258.
Use of Inequalities for Loci in Analytic Geometry. A, *Jennrich, Robert I. and Killgrove, Raymond B.* 35 (1962) 105-106.
Use of Mathematicians in the Aircraft Industry. The, *Bollay, William.* 21 (1947) 105-109.
Use of Mathematics in Government Research. The, *Nielson, Kay L.* 21 (1948) 193-195.
Use of Matrices for Study of Plane Sections of a Quadric. *Jones, Roger D.H.* 34 (1961) 337-339.
Use of Matrices in College Mathematics. The, *Aude, H.T.R.* 11 (1936) 95-104.
Use of Matrices In Teaching Conic Sections. *Amir-Moéz, Ali R.* 33 (1960) 145-156.
Use of Medians in a Testing Program in Mathematics. The, *Reklis, Virginia Modesitt.* 16 (1942) 345-349.
Use of the Equivalence Symbol and Parentheses Symbols in Associative Distributive Algebra. On the, *Vandiver, H. S.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.
Using "Cross Products" to Derive Cramer's Rule. *Barr, Donald R.* 38 (1965) 64-66.
Using the Hessian to Solve a Cubic Equation. *Ward, James A.* 9 (1935) 235-240.
Using the Mathematics News Letter [in Education]. *Renaud, Marie Louise.* 8 (1934) 87-88.
Using Zero and One. *Ransom, William R.* 19 (1944) 33-35.

V

Value: *see also* Boundary, Mean.
Value of the Study of Solid Geometry. The, *Harwell, J.T.* 5:2 (1930) 13-15.
Values of the Study of Mathematics. Some, *Heggins, Lawrence E.* 6:1 (1931) 3-6.
Values of the Trigonometric Ratios of $\pi/5$ and $\pi/10$. *Dorwart, Harold L.* 17 (1942) 115-116.
Van Der Waerden in Connection with the Elliptic Cubic. A Certain Geometrical Calculus by, *Emch, Arnold.* 14 (1940) 439-442.
van der Waerden's Theorem [on Partitions of Integers]. On Applications of, *Rabung, John R.* 48 (1975) 142-148.
Variable: *see also* Complex.
Variance of a Sequence. Iteration and Correction Formulas for the, *Pascual, Michael J.* 42 (1969) 249-252.
Variances. On the Difference Between Two Sample, *Craig, Allen T.* 11 (1937) 259-262.
Variation of Fermat's Problem. A, *Brownawell, Dale and Goodman, Victor.* 38 (1965) 267-276.
Variation of the Buffon Needle Problem. A, *Duncan, R.L.* 40 (1967) 36-38.
Variations on Continuity: Sets of Infinite Limit. *Bumcrot, R. and Sheingorn, M.* 47 (1974) 41-43.
Variations. On Extensors in the Calculus of, *Craig, Homer V.* 30 (1957) 175-191.
Variety of Mathematical Experiences. *Bowie, Harold E.* 23 (1949) 39-44.
Various Methods of Solving Cubic Equations. On, *Fettis, Henry E.* 17 (1942) 117-130.
Various Proofs of Newton's Theorem. *Tan, Kaidy.* 39 (1966) 45-58.
Various Proofs of Pascal's Theorem. *Tan, Kaidy.* 38 (1965) 22-30.
Vector Analysis. *Craig, Homer V.* 25 (1951) 67-86.
Vector Analysis and Analytic Geometry. *Byrne, William E.* 10 (1935) 44-52.
Vector Analysis and Trigonometry. *Byrne, William E.* 9 (1935) 130-134.
Vector [Cross] Product $a \times (b \times c)$. A Note on the, *Grimm, C.A.* 43 (1970) 150.
Vector Identities. An Exercise in, *Givens, Clark.* 43 (1970) 153-154.

Vector Methods. Conic Sections by, *Johnson, Arnold.* 38 (1965) 262-266.
Vector Notation. The Stereographic Projection in, *Marcus, Curt F.* 39 (1966) 100-102.
Vector on a Plane. The Projection of a, *Pyle, H. Randolph.* 34 (1961) 195-197.
Vector Representation of Rigid Body Rotation. More on, *Hickey, Harry W.* 43 (1970) 38-39.
Vector Representation of Rigid Body Rotation. On, *Wong, James S.W.* 41 (1968) 28-29; *Comment* 43 (1970) 38-39.
Vector Solutions of Geometric Problems and Their Generalizations. *Amir-Moéz, Ali R.* 38 (1965) 299-301.
Vector Space. A New Necessary and Sufficient Condition for Linear Dependence of Vectors in a Finite Dimensional, *Laidacker, Michael A.* 43 (1970) 157-158.
Vector Space Axioms for Geometry. *Fulton, Curtis M.* 36 (1963) 299-301, 311, 318.
Vector Space Techniques in Quadric Inversions. *Amir-Moéz, Ali R.* 41 (1968) 86-88.
Vectorial Derivation of Cramer's Rule. A, *Klimozak, W.J.* 29 (1956) 154-157.
Vectors: *see also* Characteristic, Orthogonal.
Vectors. A Note on, *Smith, H.L.* 6:2 (1931) 18-23.
Vectors] Are Not Always Four. Two and Two [, *Lariviere, R.* 30 (1957) 273-275.
Vectors. Covariant and Contravariant, *Deans, S.R.* 44 (1971) 5-8.
Vectors in Four-Space. A Triple Product of, *Williams, Michael Z. and Stein, F. Max.* 37 (1964) 230-235.
Vectors. Inner Products of Multilinear, *Pyle, H. Randolph.* 37 (1964) 93-100.
Vectors. On the Definition of the Sum of Two, *Smith, H.L.* 6:7 (1932) 30-31.
Vectors. On the Differentiation of Scalar Functions of, *Smith, H.L.* 4:8 (1930) 17-18.
Vectors. Teaching Trigonometry Through, *Amir-Moéz, Ali R.* 32 (1958) 19-23.
Velocity and of Acceleration. On the Notions of, *Smith, H.L.* 4:4 (1929) 16-19.
Velocity Averages. *Cargo, Gerald T.* 50 (1977) 257-258.
Venn Diagrams and Independent Families of Sets. *Grünbaum, Branko.* 48 (1975) 12-23.
Vertex Points of Curves. *Amir-Moéz, Ali R.* 36 (1963) 109-118.
Vexing Minor Problems of the Mathematics Curriculum. *Read, Cecil B.* 13 (1939) 237-239.
Vibration of a System of Disks Attached to a Heavy Shaft. The [Differential Equation Model for] Torsional, *Wylie, C.R., Jr.* 40 (1967) 86-91.
Vigeland's Monument to Abel in Oslo. *Dunnington, G. Waldo.* 11 (1936) 145-146.
Visual Aids in Teaching Geometry. *Hoag, Jessie May.* 14 (1939) 153-159.
Vitalizing Mathematics [Education]. *Edington, Will E.* 12 (1937) 27-38.
Vogel's Approximation Method. Normalizing, *Larson, Roland E.* 45 (1972) 266-269.
Volume and Surface of a Sphere in an N-Dimensional Euclidean Space. *Zatzkis, Henry.* 30 (1957) 155-158.
Volume of a Class of Truncated Prisms and Some Related Centroid Problems. On the, *Klamkin, Murray S.* 41 (1968) 175-181; *Correction* 42 (1969) 23.
Volume of a Tetrahedron. Note on the, *Smith, H.L.* 6:4 (1932) 23-24.
Von Aubel's Quadrilateral Theorem. *Kelly, Paul J.* 39 (1966) 35-37.
Voting Blocs: An Example. The Power of, *Straffin, Philip D., Jr.* 50 (1977) 22-24.

W

Waiting For a Bus. *Sutcliffe, Alan.* 38 (1965) 102-103.
Walk with Transition Probabilities That Depend on Direction of Motion. Random, *Cohen, Leon.* 37 (1964) 248-250.
Walking in the Rain. *Deakin, Michael A. B.* 45 (1972) 246-253; *Sequel* 46 (1973) 272-276.
Walking in the Rain, Reconsidered. *Schwartz, Benjamin L. and Deakin, Michael A.B.* 46 (1973) 272-276.
Wallis Product. Inequalities for the, *Everett, C.J.* 43 (1970) 30-33.
War--A Challenge to Mathematics Teacher. Mathematics in a World at, *Zant, James H.* 18 (1943) 77-80.
Waring's Problem. *Small, Charles.* 50 (1977) 12-16.
Warren Colburn and His Influence on Arithmetic in the United States. *Richeson, A.W.* 10 (1935) 73-79.
Washing of Socks [: Applied Mathematics]. The, *Johnson, Paul B.* 39 (1966) 77-83.
Waves of Permanent Type in a Channel of Infinite Depth. On the Local Uniqueness Problem for Periodic Surface, *Hyers, D.H. and Ferling, J.A.* 31 (1957) 61-74.
Way of Redemption. The [Permutation], *Tepper, Myron D.* 37 (1964) 269-271.
We Discover the Meaning of Curvature. *Olds, Edwin G.* 14 (1940) 469-471.
We Should Teach Our Students About Mathematics. *McCreery, Louis R.* 34 (1961) 153-155
We [Teachers] Look Before and After." *Stark, Marion E.* 18 (1943) 116-119.
Weak Sufficient Conditions for Fatou's

Lemma and Lebesgue's Dominated Convergence Theorem. *Van der Vaart, H.R. and Yen, Elizabeth H.* 41 (1968) 109-117.
Weak Topology. Compactness in the, *Brace, John Wells.* 28 (1955) 125-134.
Weaknesses in Mathematical Training. Some, *Campbell, Alan D.* 12 (1938) 347-350.
Web of Conics. Concerning a Certain, *Dorwart, Harold L.* 16 (1941) 59-61.
Weierstrass Approximation Theorem. Coin Tossing, Probability, and the, *Kuller, Robert G.* 37 (1964) 262-265.
Weierstrass Approximation Theorem. The Generalized, *Stone, Marshall H.* 21 (1948) 167-184, 237-254.
Weierstrass Product Inequalities. Extensions of the, *Klamkin, Murray S. and Newman, D.J.* 43 (1970) 137-141.
Weight, Length and Time. The Origin and Development of Tables of, *Sleight, E. R.* 19 (1945) 236-243.
Weights by Epiphanius. On Measures and, *Shaw, Allen A.* 11 (1936) 3-7
Well-Ordered Sets Without Last Element. Seminatural Systems as Nonempty, *Stern, Samuel T.* 43 (1970) 93-94.
Well-Ordering of Sets. A Note on the, *Keeping, E.S.* 33 (1959) 43-45.
Wentworths. [Biography:] The Two, *Gwinner, Harry.* 9 (1935) 165.
What Color Was the Bear? *Schwartz, Benjamin L.* 34 (1960) 1-4.
What is Essential in Teaching Mathematics? *Blumberg, Henry.* 12 (1938) 393-402.
What Makes a Genius Tick? (An Interview with George Bergman). *Wallace, Mike.* 31 (1958) 282.
What Mathematics Has Meant To Me. *Bell, E.T.* 24 (1951) 161.
What Mathematics Means To Me. *Michal, Aristotle D.* 24 (1951) 223.
What Mathematics Means to Me. *Robinson, Lewis Bayard.* 25 (1951) 115.
What Mathematics Means To Me. *Thomas, T. Y.* 24 (1951) 275-276.
What We Mean by Mathematics. *Sakellariou, Nilos.* 25 (1951) 51-52.
When do the Periodic Elements of a Group Form a Subgroup? *Sherman, Gary J.* 47 (1974) 279-281.
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Where is the [Geometric] Fallacy? *Maizlish, I.* 4:2 (1929) 19-20.
Which Nonnegative Matrices are Self-Inverse? *Harary, Frank and Minc, Henryk.* 49 (1976) 91-92.
Whither Mathematics? *Keal, Harry M.* 20 (1945) 21-28.
Who Reads the Mathematics Magazine? *Cote, L.J. and O'Malley, R.P.* 45 (1972) 273-278.
Why Learn Mathematics? *Olds, Edwin G.* 13 (1939) 329-335.
Why Logarithms to the Base e Can Justly be Called Natural Logarithms. *Evans, John Ellis.* 14 (1939) 91-95.
William B. Orange Mathematics Prize Competition. *Anonymous.* 29 (1955) 77-82.
Wilson's Theorem. A Generalization of, *Elston, Fred G.* 30 (1957) 159-162.
Word Transpose in Algebra. The, *Parker, W. Vann.* 6:5 (1932) 17-18.
World [Copernicus and Kepler]. The Harmony of the, *Kline, Morris.* 27 (1954) 127-139.
World Series. A Binomial Identity Derived from a Mathematical Model of the, *Strait, Peggy Tang.* 48 (1975) 227-228.
Worth While Experiment [in Education]. A, *Clive, W.R.* 5:3 (1930) 6-8.
Wrapping of a Closed Surface. On, *Glauz, R.D.* 42 (1969) 27-28.
Writing the General Term Coefficient of the Binomial Expansion to Negative and Fractional Powers, in Tri-Factorial Form. On, *Funkenbusch, William W.* 17 (1943) 308-310.
Written Classwork and Homework. *Pettigrove, Ruth I.* 5:3 (1930) 14-18.
Wronskian Formula. On the, *Machover, Maurice.* 47 (1974) 89-91.
Wythoff's Game and Other Related Games. Some Generalizations of, *Holladay, John C.* 41 (1968) 7-13.

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$x^{15} + 1$ [Factoring], *Anning, Norman.* 32 (1958) 97-98.
X-Pone," for Pointing Off Decimals. A Mechanical [Slide Rule] Device, "The, *Weckesser, C.L.* 28 (1954) 87-92.

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Yin and of Yang. Bisection of, *Trigg, Charles W.* 34 (1960) 107-108.
Young Instructors of Mathematics. To, *Russell, Helen H.* 22 (1948) 54-55.
Young's Inequality. An Elementary Derivation of the Cauchy, Hölder, and Minkowski Inequalities from, *Tolsted, Elmer.* 37 (1964) 2-12.

Z

Z-Transforms. A Difference Method for Obtaining, *Fielder, Daniel C.* 37 (1964) 346-348.
Zermelo. Mathematics and Mathematicians

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Zero and One. Using, *Ransom, William R.* 19 (1944) 33-35.
Zero-Symbol. A Number System without a, *Foster, James E.* 21 (1947) 39-41.
Zero]. The Most Powerful Thing in the World [--, *Neureiter, Paul R.* 19 (1945) 244-246.
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Zeros of a Polynomial. A Property of the, *Mandelbaum, Joseph and Schild, Albert.* 42 (1969) 247-248.
Zeros of a Polynomial. A Theorem on Rational, *Leighton, Walter.* 45 (1972) 156-158; *Comment* 45 (1972) 282.
Zeros of a Polynomial. Approximating the, *Cook, Erben, Jr.* 35 (1962) 165-172.
Zeros of a Polynomial. Upper Bounds on the Moduli of the, *Riddell, R.C.* 47 (1974) 267-273.
Zeros of Polynomials. A Note on the Geometry of, *Long, Clifford A.* 44 (1971) 157-159.
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———. *The Affine Theorems of Pasch, Menelaus and Ceva.* 45 (1972) 78-82.

Abramson, Morton. *Certain [Combinatorial] Distributions of Unlike Objects Into Cells.* 43 (1970) 214-218.

———, and Moser, William. *Combinations, Successions and the n-Kings [Chess] Problem.* 39 (1966) 269-273.

———. *Multinomial Coefficients.* 41 (1968) 199-205.

Adams, L.J. *A Special Case of a Transformation Due to Gurney.* 9 (1934) 53.

———. *Successive Smoothings of a Time Series.* 10 (1935) 18-19.

———. *The Use of Conics in Airplane Design.* 25 (1952) 195-202.

Adamson, Steven and Wylie, C.R., Jr. *Projectivities in $PG_{10(nd)}$.* 45 (1972) 150-152.

Adkisson, V.W. *The General Solution of the Exact Differential Equation Mdx + Ndy = 0.* 12 (1938) 296-297.

Adler, Jerry. *So You Think You Can Count!* 28 (1954) 83-86.

Agnew, Elizabeth H. *Two Problems on Magic Squares.* 44 (1971) 13-15.

Ahmad, Shair. *The Kuratowski Closure Axioms.* 37 (1964) 296-297.

Akst, George. *A Strange Ultrametric Geometry.* 49 (1976) 142-145.

Albaugh, Henry. *A New Look at [Euler's Formula] $e^{i\phi} = \cos\phi + i \sin\phi$.* 34 (1961) 285-288.

Albree, Joe. *The GCD of Certain Binomial Coefficients.* 45 (1972) 259-261.

Alder, Henry L. *The Number System in More General Scales [Bases].* 35 (1962) 145-151.

Alfred, Brother Bernard. *Another Start.* 13 (1938) 133-136.

Alfred, Brother U. *Consecutive Integers Whose Sum of Squares is a Perfect Square.* 37 (1964) 19-32; *Sequels* 37 (1964) 218-220; 40 (1967) 194-199; 41 (1968) 255-258.

———. *n and n + 1 Consecutive Integers with Equal Sums of Squares.* 35 (1962) 155-164.

———. *Sums of Squares of Consecutive Odd Integers.* 40 (1967) 194-199; *Sequels* 41 (1968) 255-258; 42 (1969) 145; 43 (1970) 212-213.

———. *The Amateur Mathematician.* 34 (1961) 311-315.

Allard, Jacques. *Note on Squares and Cubes.* 37 (1964) 210-214.

———. *Notes on Pseudo-Rectangles.* 38 (1965) 61-64.

———. *Remarks on the Expression $\Sigma(x_i/a_i)^{2n1}$ = Constant.* 36 (1963) 254-255.

Allen, Edward S. *Definitions of Probability.* 8 (1934) 132-135.

Allen, William A. *Mathematical Analysis of the Parallel Parking Problem.* 34 (1960) 63-66.

Allendoerfer, Carl B. *Generalizations of Theorems About Triangles.* 38 (1965) 253-259.

Alonso, James. *Number of Solutions of the Congruence $x^m \equiv r \pmod n$.* 46 (1973) 215-217.

Al-Salam, Waleed A. *On a Characterization of Orthogonality.* 31 (1957) 41-44.

Alspach, Brian; Goldberg, Myron and Moon, J.W. *The Group of the Composition of Two Tournaments.* 41 (1968) 77-80.

Amir-Moéz, Ali R. *A Finite Sequence and a Card Trick.* 30 (1957) 25-26.

——— and Hamilton, J.D. *A Generalized Parallelogram Law.* 49 (1976) 88-89.

———. *A Problem About Geodesics.* 34 (1961) 211-213.

———. *Conformal Linear Transformations.* 40 (1967) 268-270.

———. *Curvilinear Projection.* 33 (1959) 103-104.

——— and Newman, T.G. *Geometry of Generalized Inverses.* 43 (1970) 33-36.

———. *Group Theory and Colors.* 32 (1959) 161-162.

———. *Ibn Haitham's Problems and Their Geometric Solutions.* 30 (1956) 93.

———. *Inner Product of Two Circles.* 29 (1956) 269-270.

———. *Invariance of Circle Product.* 33 (1959) 35-38.

———. *Khayyam's Solution of Cubic Equations.* 35 (1962) 269-272.

———. *Limit of a Function and a Card Trick.* 38 (1965) 191-196.

———. *Matrices in Teaching Trigonometry.* 37 (1964) 78-81.

——— and Johnston, G.E. *On the Product of Diagonal Elements of a Positive Matrix.* 42 (1969) 24-26.

———. *Parametrization of Certain Quadrics.* 39 (1966) 277-280.

———. *Principles of Induction and a Sequence of Generosities.* 31 (1958) 120, 132.

———. *Teaching Trigonometry Through Vectors.* 32 (1958) 19-23.

———. *Use Of Matrices In Teaching Conic Sections.* 33 (1960) 145-156.

———. *Vector Solutions of Geometric Problems and Their Generalizations.* 38 (1965) 299-301.

———. *Vector Space Techniques in Quadric Inversions.* 41 (1968) 86-88.

———. *Vertex Points of Curves.* 36 (1963) 109-118.
Anderson, Philip H. *A Remark on Nonassociative Binary Operations.* 44 (1971) 162-163.
Andrea, Stephen A. and Wong, Edward T. *Row Rank and Column Rank of a Matrix.* 34 (1960) 33-34.
Andree, Richard V. *How Modern Mathematical Concepts Shed Light on Elementary Mathematics.* 28 (1955) 173-176.
———. *Sketching Loci in Polar Co-ordinates.* 24 (1951) 277.
Andrew, David R. *A Common Misapplication of the Axiom of Finite Induction.* 35 (1962) 289.
Andrushkiw, Joseph W.; Andrushkiw, Roman I. and Corzatt, Clifton E. *Representations of Positive Integers as Sums of Arithmetic Progressions.* 49 (1976) 245-248.
———. *The Probability that the Roots of a Real Quadratic Equation Lie Inside or on the Circumference of the Unit Circle in the Complex Plane.* 32 (1959) 123-128.
Andrushkiw, Roman I. *see also* Andrushkiw, Joseph W.
Annapurna, U. *Inequalities for $\sigma(n)$ and $\phi(n)$.* 45 (1972) 187-190; *Comment* 46 (1973) 161.
Anning, Norman. [*Factoring*] $x^{15} + 1$. 32 (1958) 97-98.
———. *Four Mathematical* [*Number*] *Surprises.* 36 (1963) 80.
Anonymous. *A Simple Song* [*Humor*]. 49 (1976) 180.
———. *Minutiae in Teaching Procedure.* 10 (1936) 175-177.
———. *On the Construction of Multiple Choice Tests or Barbarous Parodies of the Barber's Paradox...* 43 (1970) 213-214.
———. *William B. Orange Mathematics Prize Competition.* 29 (1955) 77-82.
Apostol, Tom M. *Ptolemy's Inequality and the Chordal Metric.* 40 (1967) 233-235.
Arany, Daniel. *The Poristic Locus of the Gergonne Point.* 13 (1939) 367.
Archibald, R.C. *Humanizing Mathematics.* 7:2 (1932) 8-11.
Arens, Richard. *Advanced Algebra: Operations Without Numbers.* 24 (1951) 253-264.
———. *Note on Convergence in Topology.* 23 (1950) 229-234.
Arkin, Joseph. *A Function Whose Values are Integers.* 38 (1965) 196-199.
Arnold, H.A. *The Crossed Ladders.* 29 (1956) 153-154.
Arnold, H.E. and Parente, A.R. *On the Rational Plane Quartic Curve with Triple Point.* 14 (1939) 138-140.
Arpaia, P.J. *A Generating Property of Pythagorean Triples.* 44 (1971) 26-27.
Ash, Robert B. and Bishop, Richard L. *Monopoly as a Markov Process.* 45 (1972) 26-29.
Aucoin, A.A. *A Note on a Diophantine Equation.* 14 (1940) 459-460.
———. *N Producers in Cooperation and Competition.* 11 (1937) 354-360.
———. *On the Leaf Curves.* 43 (1970) 156-157.
———. *see also* Nowlan, F.S.
———. *see also* Parker, W. Vann.
Aude, H.T.R. *A Graphic Solution of the* [*Trigonometric*] *Equation $a \cos \theta + b \sin \theta = c$.* 10 (1935) 99.
———. *A Note to the Theory of Equations.* 14 (1940) 308-310.
———. *Intrinsic Decimals.* 8 (1933) 8-12.
———. *Primitive Integral Triangles.* 16 (1942) 280-283.
———. *The Mathematics Meeting of Hamilton, Colgate and Syracuse.* 10 (1935) 100-101.
———. *The Solutions of the Quadratic Equation Obtained by the Aid of the Trigonometry.* 13 (1938) 118-121.
———. *The Use of Matrices in College Mathematics.* 11 (1936) 95-104.
Ault, John W. *Carry-Over* [*in Education*]. 32 (1959) 264.
Austin, A.K. *A Calculus for Know/Don't Know Problems.* 49 (1976) 12-14.
Avishalom, Dov. *The Perimetric Bisection of Triangles.* 36 (1963) 60-62.
Ayres, Frank, Jr. *On N + 2 Mutually Orthogonal Hyperspheres.* 10 (1936) 249-257.

B

Bailey, D. Moody. *Circle Associate on a Given Point.* 37 (1964) 224-226.
———. *Homologous Point in the Medial Triangle.* 39 (1966) 236-239.
———. *Line Determined by Two Points.* 41 (1968) 183-187.
———. *On Pedal Ratios.* 38 (1965) 128-130.
———. *Point of Intersection of Triangle Transversals.* 37 (1964) 331-333.
———. *Radical Axis of Two Circles.* 38 (1965) 44-45.
———. *Reflective Geometry of the Brocard Points.* 36 (1963) 162-175.
———. *Some Radical Axes Associated with the Circumcircle.* 38 (1965) 199-205, 276-283; 39 (1966) 9-17.
———. *Some Reflective Geometry of the Triangle.* 33 (1960) 241-259.
Bajaj, P.N. *A Note on Steiner's Problem.* 40 (1967) 273.
Baker, G.A. *A New Least-Squares Line.* 22 (1949) 199-200.
———. *Computational Savings in Routine Comparisons of the Means of Correlated Observations.* 15 (1941) 399-400.

———. *F. Values for Samples of Four and Four Drawn from Populations Which are the Sum of Two Normal Populations.* 19 (1944) 62-63.
———. *Fundamental Distribution of Errors for Agricultural Field Trials.* 16 (1941) 7-19.
———. *Theory of Budgets Based on Parabolic Engel Curves.* 26 (1952) 67-70.
Ballard, Ruth M. *Construction of Objective Tests in Mathematics.* 16 (1941) 150-156.
Bankoff, Leon. *A Geometrical Coincidence.* 37 (1964) 324.
———. *A Simple Proof of the Morley Theorem.* 35 (1962) 223-224.
———. *Are the Twin Circles of Archimedes Really Twins?* 47 (1974) 214-218.
———. *Circles Inscribed in Two Intersecting Circles.* 38 (1965) 43.
———. *Four Equal Tritangent Circles.* 37 (1964) 48.
———. *Related Circles.* 35 (1962) 90.
———. *Six Equal Inscribed Circles.* 36 (1963) 65-66.
———; Erdös, Paul and Klamkin, Murray S. *The Asymmetric Propeller.* 46 (1973) 270-272.
——— and Garfunkel, Jack. *The Heptagonal Triangle.* 46 (1973) 7-19.
——— and Trigg, Charles W. *The Ubiquitous [Pythagorean] 3:4:5 Triangle.* 47 (1974) 61-70.
Barbeau, E.J. *Expressing One as a Sum of Odd Reciprocals.* 49 (1976) 34; *Comment* 49 (1976) 103, 155-156.
Barber, Harry C. *Mathematics [Education] at Exeter.* 4:7 (1930) 8-14.
Barker, George Phillip. *Triangular Matrices and the Cayley-Hamilton Theorem.* 44 (1971) 34-36.
Barnett, I.A. *Proposal for the Improvement of the Teaching of Mathematics.* 9 (1934) 74-81.
Barnett, Joseph, Jr. *A Comparison of the United States Rule With the Merchant's Rule for Computing the Maturity Value of a Note on Which Partial Payments Have Been Made.* 23 (1949) 24-26.
Barnhart, C.A. *Geometric Examples of Convergent Series.* 17 (1943) 159-162.
Baron, Julius G. *The Game of Nim--A Heuristic Approach.* 47 (1974) 23-28.
Barr, Donald R. *Using "Cross Products" to Derive Cramer's Rule.* 38 (1965) 64-66.
———. *When Will the Next Record Rainfall Occur?* 45 (1972) 15-19.
Basin, S.L. *An Application of Continuants.* 37 (1964) 83-91.
———. *The Appearance of Fibonacci Numbers and the Q Matrix in Electrical Network Theory.* 36 (1963) 84-97.
Baslaw, Ronald S. and Hastings, Harold M. *On the Critically Damped Oscillator.* 48 (1975) 105-106.
Bateman, H. *Operational Equations.* 9 (1935) 197-201.
———. *Some Definite Integrals Occurring in Havelock's Work on the Resistance of Ships.* 23 (1949) 1-4.
———. *The Form of a Ship.* 16 (1941) 141-149.
———. *The Influence of Tidal Theory Upon the Development of Mathematics.* 18 (1943) 14-26.
———. *The Resistance of Ships.* 16 (1941) 79-88.
Baten, William Dowell. *Analyzing Degrees of Freedom Into Comparisons When the "Classes" Do Not Contain the Same Number of Items.* 19 (1945) 221-228.
———. *Concerning the Distribution of the Mean of r Independent Chance Variables When Each Is Subject to the Frequency Law* $(\Gamma(p+q)/\Gamma(p)\Gamma(q))x^{p-1}(1-x)^{q-1}$. 13 (1939) 357-361.
———. *The Standard Error of the Standard Error of Estimate.* 16 (1942) 183-185.
Bauerochse, Tom R.G. *Square Roots by an Iterative Method and Its Generalization to Positive Integral Roots of Order n.* 39 (1966) 219-223.
Baum, John D. *A Note on Primitive Roots.* 38 (1965) 12-14.
Beardon, A.F. *On the Behavior of a Special Series.* 41 (1968) 74-77.
———. *The Real Solutions of [the Equation]* $x^y = y^x$. 39 (1966) 108-111.
Beckenbach, Edwin F. *Complex Variable Theory.* 25 (1951) 7-28.
———. *Metric Differential Geometry.* 23 (1950) 143-152.
Becker, H.W. *Comment on Two Papers [Escalator and Kümmer Numbers] by P.A. Piza.* 22 (1949) 213-214.
———. *Proof of [Fermat's Last Theorem] for All Even Powers.* 28 (1955) 297-298.
———. *Rooks and Rhymes.* 22 (1948) 23-26.
Becknell, G.G. *Mathematical Heredity.* 34 (1960) 23-28.
Beenken, May M. *Improving the Teaching of College Mathematics.* 8 (1934) 97-103.
Beesack, Paul R. *On Improper Multiple Integrals.* 43 (1970) 113-123.
———. *On the Rank of a Matrix.* 35 (1962) 73-77.
Behboodian, Javad. *Covariance of Monotone Functions.* 45 (1972) 158.
Beidler, John A. *Think-A-Dot Revisited.* 46 (1973) 128-136.
Bell, Clifford. *On the Discriminant of a Conic.* 9 (1935) 142.
———. *On the Properties of a Determinant Function.* 10 (1936) 171-174.
———. *On the Simplification of Formulas in the Mathematics of Finance.* 7:7 (1933) 21-23.
———. *The Solution of Numerical Equations.* 14 (1940) 435-438.

Bell, E.T. *A Representation of Certain Integer Powers.* 20 (1945) 3-4.
———. *Analogues for Arithmetical Functions of the Elementary Transcendental Functions.* 21 (1947) 65-73.
———. *Gauss and the Early Development of Algebraic Numbers.* 18 (1944) 188-204, 219-233.
———. *Solution of a Functional Equation in the Multiplicative Theory of Numbers.* 24 (1951) 233-235.
———. *The Elementary Theory of Numbers.* 23 (1949) 45-51.
———. *The Golden and Platinum Proportions.* 19 (1944) 21-26.
———. *What Mathematics Has Meant To Me.* 24 (1951) 161.
Bellman, Richard. *Dynamic Programming and "Difficult Crossing" Puzzles.* 35 (1962) 27-29.
———. *Inequalities.* 28 (1954) 21-26.
———. *On Explicit Solutions of Some Trinomial Equations in Terms of the Maximum Operation.* 30 (1956) 41-44.
Bennett, Albert A. *Trends in the Teaching of Secondary School Mathematics.* 18 (1944) 315-322.
Bennett, D.G. and Fisher, B. *On a Fixed Point Theorem for Compact Metric Spaces.* 47 (1974) 40-41; *Comment* 48 (1975) 48.
Benson, Arne. *Resistance Circuits and Things Synthesized by Number Theory.* 34 (1961) 125-130; *Comment* 34 (1961) 233.
Berg, Murray. *see also* Walstrom, John E.
Bergdal, Ed. *Complex Graphs.* 24 (1951) 195-202.
Bergman, George M. *A Further Generalization of Neustadt's Law* [*Satire*]. 32 (1959) 271-274.
———. *A Number System with an Irrational Base.* 31 (1957) 98-110.
———. *Transformations and Optics.* 34 (1961) 215-217.
Bergquist, J.W. and Foster, Lorraine L. *Infinite Classes of Harmonic Integers.* 40 (1967) 128-132.
Bergum, G.E. and Jordan, J.H. *The Distribution of Quadratic Residues in Fields of Order p^2.* 45 (1972) 194-200.
Berlekamp, Elwyn R. *Making Change.* 49 (1976) 195-198.
Berlinghoff, W.P. *An Apparently Algebraic Property of the Integers.* 46 (1973) 211-213.
Berman, David. *Hex Must Have a Winner: An Inductive Proof.* 49 (1976) 85-86; *Comment* 49 (1976) 156.
Berndt, Bruce C. *Elementary Evaluation of $\zeta(2n)$.* 48 (1975) 148-154.
Bernet, Glenn H., Jr. *see also* Hill, Richard D.
Berry, Daniel M. and Yavne, Moshe. *The Conway Stones: What the Original Hebrew May Have Been.* 49 (1976) 207-210.
Bettinger, A.K. *An Easy Method for Drawing Curves in Polar Coordinates.* 11 (1937) 327-331.
Betz, William. *Next Steps in Education and in the Teaching of Mathematics.* 18 (1944) 153-176.
Beyer, W.A. and Waterman, M.S. *Symmetries for Conditioned Ruin Problems.* 50 (1977) 42-45.
Bhargava, T.N. and Doyle, P.H. *On the Existence of Absolute Primes.* 47 (1974) 233.
Bhaskaranandha, C.N. *A Construction by Ruler Only.* 35 (1962) 103-104.
Bicknell, Marjorie and Hoggatt, Verner E., Jr. *An Investigation of Nine-Digit Determinants.* 36 (1963) 147-152.
———. *see also* Hoggatt, Verner E., Jr.
Billik, Martin and Edgar, Hugh M. *Covering Sets of Congruences.* 46 (1973) 265-270.
Birnbaum, S. and Ommidvar, K. *The Group Method.* 28 (1955) 277-279.
Bishop, Richard L. *Characterizing Motions by Unit Distance Invariance.* 46 (1973) 148-151.
———. *see also* Ash, Robert B.
Bissinger, B.H. *The* [*Diophantine*] *Egg Problem.* 28 (1955) 177-182.
Blair, Robert L. *Proofs of Urysohn's Lemma and Related Theorems by Means of Zorn's Lemma.* 47 (1974) 71-78.
Blake, Robert G. *Plane Geometry and Complex Numbers.* 35 (1962) 239-242.
Bleick, W.E. *Relation Between Correlation and Eccentricity.* 43 (1970) 149-150.
Bloch, A. *Triangulation of a Triangle.* 37 (1964) 242-247.
Blumberg, Henry. *What is Essential in Teaching Mathematics?* 12 (1938) 393-402.
Blundon, W.J. *On Certain Polynomials Associated with the Triangle.* 36 (1963) 247-248.
Boas, Ralph P., Jr. *Distribution of Digits in Integers.* 50 (1977) 198-201.
——— and Klamkin, Murray S. *Extrema of Polynomials.* 50 (1977) 75-78.
———. *Inequalities for the Derivatives of Polynomials.* 42 (1969) 165-174.
———. *Tannery's Theorem.* 38 (1965) 66.
Bodenrader, J.C. *Factoring Functions.* 44 (1971) 77-81.
Boldyreff, Alexander W. *Decomposition of Rational Fractions Into Partial Fractions.* 17 (1943) 261-267.
——— and Hohn, Franz E. *On the General Definition of a Conic.* 17 (1942) 31-37.
Bollay, William. *The Use of Mathematicians in the Aircraft Industry.* 21 (1947) 105-109.
Bollobás, Béla and Erdös, Paul. *An Extremal Problem of Graphs with Diameter 2.* 48 (1975) 281-283.

Bosch, W. and Krajkiewicz, P. *A Categorical System of Axioms for the Complex Numbers.* 43 (1970) 67-70.
Bostick, Lucille M. *Interesting High School Freshmen in Algebra.* 4:5 (1930) 3-5.
——— and Payne, William A. [Erroneously]. *The Unit Assignment in Algebra and Geometry.* 8 (1934) 76-80; *Reprinted* 162-167.
Bottema, O. *A Theorem on an Inscribed Triangle.* 47 (1974) 34-36.
Botts, Truman. *A Chain Reaction Process in Number Theory.* 40 (1967) 55-65.
———. *Probability Theory and the Lebesgue Integral.* 42 (1969) 105-111.
Bowie, Harold E. *The Rule of Double False.* 26 (1953) 269-272.
———. *Variety of Mathematical Experiences.* 23 (1949) 39-44.
Bowman, K.O. and Shenton, L.R. *Factorable Determinants.* 45 (1972) 144-147.
Boyd, Paul P. *Mathematics As a Personal Experience.* 10 (1936) 157-164.
Boyer, Carl B. *Fermat's Integration of* x^n. 20 (1945) 29-32.
———. *Fractional Indices, Exponents, and Powers.* 18 (1943) 81-86.
———. *Historical Stages in the Definition of Curves.* 19 (1945) 294-310.
———. *Zero: The Symbol, The Concept, The Number.* 18 (1944) 323-330.
Brace, John Wells. *Compactness in the Weak Topology.* 28 (1955) 125-134.
Brand, Louis. *Test for the Rank of a Matrix.* 33 (1960) 277-278.
Brauer, Alfred. *On Certain Limits.* 18 (1943) 64-66.
Brearley, M.N. *The Long Jump Miracle of Mexico City [: A Calculus Analysis].* 45 (1972) 241-246.
Bredon, Glen E. *The Isoperimetric Problem in the Plane.* 30 (1956) 63-69.
Brendan, Brother T. *Difficulties in Proposing Undergraduate Research.* 35 (1962) 297-299.
Brenner, J.L. *Comments on a Trajectory-Indicating Device.* 44 (1971) 92-94.
——— and De Pillis, J. *Fermat's Equation of* $A^p + B^p = C^p$ *for Matrices of Integers.* 45 (1972) 12-15.
Breusch, Robert. *A Simple Proof of Fermat's Last Theorem for* $n = 6$ *and* $n = 10$. 33 (1960) 279-281.
Briggs, W.E. *see* Hawkins, David.
Brillinger, David R. *The Analyticity of the Roots of a Polynomial as Functions of the Coefficients.* 39 (1966) 145-147.
Brock, William A. and Thompson, Russell G. *Convex Solutions of Implicit Relations.* 39 (1966) 208-211.
Bronson, Richard. *Norm Preserving Operators on Decomposable Tensors.* 46 (1973) 100.
———. *see also* Steiner, Gilbert.
Brooke, Maxey. *Fibonacci Fancy.* 35 (1962) 218.
———. *Mathematics and Philately.* 34 (1960) 31-32; *Comment* 34 (1960) 297.
———. *On the Digital Roots of Perfect Numbers.* 34 (1960) 100, 124; *Comment* 35 (1962) 45-46.
Brooks, Foster. *Corn Rows and Convex Curves.* 44 (1971) 141-144.
Brousseau, Brother Alfred. *Palindromes by Addition in Base Two.* 42 (1969) 254-256.
Brown, Arthur B. *Line Integrals in a Multiply Connected Region.* 34 (1961) 230-232.
———. *Linear Diophantine Equations.* 31 (1958) 215-220.
———. *Sufficient Conditions for Envelopes in n-Space.* 37 (1964) 227-229.
Brown, Bancroft H. *Inquiries in Mathematics.* 22 (1949) 151-156.
———. *Integral Twins.* 29 (1956) 275-276.
Brown, J.L., Jr. *A Characterization of 0-Sequences.* 45 (1972) 209-213.
———. *Integer Representations and Complete Sequences.* 49 (1976) 30-32.
———. *On the Equivalence of Completeness and Semicompleteness for Integer Sequences.* 36 (1963) 224-226.
Brown, John R. *Extendapawn--An Inductive Analysis.* 38 (1965) 286-299.
Brown, Richard L.W. *The Klein Bottle as an Eggbeater.* 46 (1973) 244-250.
Brown, T.A. *A Note on "Instant Insanity."* 41 (1968) 167-169; *Sequel* 43 (1970) 20-23.
———. *The Distance of a Point From a Line.* 37 (1964) 157-159.
Brown, T.C. and Weiss, Max L. *On N-Sequences.* 44 (1971) 89-92.
Brownawell, Dale and Goodman, Victor. *A Variation of Fermat's Problem.* 38 (1965) 267-276.
Brubaker, David A. *A Proof that Not Both* πe *and* $\pi + e$ *Are Algebraic.* 44 (1971) 267.
Bruckner, Andrew M. *A Note on Convex Polygons Inscribed in Open Sets.* 37 (1964) 250-251.
———. *Derivatives: Why They Elude Classification.* 49 (1976) 5-11.
Brunk, H.D. and Gref, L.G. *A Geometrical Approach to Probability.* 37 (1964) 287-296.
Bruton, Gaston S. *Certain Problems.* 7:3 (1932) 14-19.
Bruyr, Donald L. *Some Comments About Definitions.* 43 (1970) 57-64.
Bryant, V.W. *A Fresh Look at Geometry.* 44 (1971) 180-182.
Buchanan, H.E. *On a Certain Integral Arising in Quantum Mechanics.* 10 (1936) 247-248.
———. *The Algebraic Equation as a Balance.* 5:6 (1931) 20-23.

———. *The Development of Elementary Geometry.* 3:5 (1929) 9-18.
———. *The Growth of Modern Methods of Computation.* 2:4 (1928) 6-11.
Bucher, R. and Godbole, S. *Cofactorial Matrices.* 42 (1969) 142-145.
Buck, Ellen F. *see* Buck, R.C.
Buck, R.C. and Buck, Ellen F. *Equipartition of Convex Sets.* 22 (1949) 195-198.
———. *Multiple Integration.* 20 (1945) 33.
———. *Topology and Analysis.* 40 (1967) 71-74.
Buckholtz, J.D. *Geometric Approximations for e.* 47 (1974) 138-143.
Bumcrot, R. and Sheingorn, M. *Variations on Continuity: Sets of Infinite Limit.* 47 (1974) 41-43.
Bunch, William H. *Properties of the Complete Pentagon.* 40 (1967) 132-140.
Burckel, R.B. and Goffman, C. *Rectifiable Curves Are of Zero Content.* 44 (1971) 179-180.
Burg, W.V. *The Demonstration of Intersections.* 13 (1939) 192-193.
Burington, Richard S. *The Mil as an Angular Unit and Its Importance to the Army.* 15 (1941) 400, 402.
Burke, John F. *A Curve of Constant Diameter.* 39 (1966) 84-85.
———. *Bertrand Curves Associated with a Pair of Curves.* 34 (1960) 60-62.
Burke, Sister Leonarda. *Two Ways of Setting Up the Symmetric Correspondence $C_{2,2}$ and a Relation Connecting Them.* 16 (1941) 29-33.
Burkill, H. *A Note on Linearity.* 43 (1970) 75-77.
———. *The Periods of a Periodic Function.* 47 (1974) 206-210.
Burling, James P. and Keiser, Victor H. *A Note on the Equation $n^2 + n + 1 = p^r$.* 37 (1964) 339-340.
Burns, J.C. *Morley's Triangle.* 43 (1970) 210-211.
Burton, Lindley J. *Receding Galaxies.* 33 (1960) 161.
Busby, Robert W. *see* Kennedy, Robert E.
Buschman, R.G. and Damaskos, N.J. *A Generalization of the Legendre Transformation.* 33 (1960) 185-191.
———. *On Divisor Functions.* 43 (1970) 276.
Busemann, Herbert. *Non-Euclidean Geometry.* 24 (1950) 19-34.
Bush, George C. *The Language of Functions --A Survey and a Proposal.* 42 (1969) 259-262.
Bush, L.E. *The Introduction of Invariant Theory Into Elementary Analytic Geometry.* 12 (1937) 82-89, 131-137.
Butchart, J.H. *Minimum Property of the Symmedian Point.* 22 (1949) 165-166.
———. *The Parabola of Surety, A Sequel.* 28 (1955) 229-230.
Byrd, J.W. *see* Hoomani, A.A.
Byrne, William E. *Alternating Current [Differential Equation] Calculations.* 8 (1933) 12-18.
———. *An Electrical [Differential Equation] Problem.* 7:7 (1933) 30-33.
———. *An Infinite Series.* 17 (1943) 292-295.
———. *An Interesting Locus Problem.* 7:5 (1933) 6-9.
———. *Integration of [the Rational Forms] $R(\sin\theta, \cos\theta)$.* 6:7 (1932) 27-30.
———. *The Parametric Representation of a Certain Parabola.* 7:2 (1932) 13-16.
———. *Trigonometric Inequalities.* 7:1 (1932) 14-17.
———. *Vector Analysis and Analytic Geometry.* 10 (1935) 44-52.
———. *Vector Analysis and Trigonometry.* 9 (1935) 130-134.

C

Cadogan, Charles. *Some Generalizations of the Pascal Triangle.* 45 (1972) 158-162.
Cameron, Douglas E. *On Subspaces of Separable Spaces.* 48 (1975) 288.
Cameron, Robert H. *Some Introductory Exercises in the Manipulation of Fourier Transforms.* 15 (1941) 331-356.
Camp, Chester C. *A Generalization of Chevilliet's Formula.* 11 (1936) 8-13.
———. *Expansions Involving Differential Equations in Which the Coefficient of a Parameter Changes Sign.* 12 (1938) 216-222.
———. *Grades in Freshman Algebra as Indicative of Later Success in Engineering Mathematics Courses.* 15 (1941) 251-253.
Campbell, Alan D. *Some Weaknesses in Mathematical Training.* 12 (1938) 347-350.
Campbell, J.G. *Another Solution of the Cubic Equation.* 35 (1962) 43.
Canaday, E.F. *The Osculating Parabola to any Curve $y = f(x)$.* 33 (1959) 105-107.
———. *Proof of the Theorem on the Intersection of the Medians of a Triangle.* 21 (1948) 289.
Candy, A.L. *The Number of 12 x 12 Squares That Can Be Constructed by the Method of Current Groups.* 9 (1935) 223-235.
———. *To Construct a Magic Square of Order 2n From a Given Square of Order n.* 8 (1934) 147-160; 9 (1935) 99-105.
Caners, Leonard. *Pythagorean Principle and Calculus.* 28 (1955) 276; *Comments* 29 (1955) 40, 58; 29 (1956) 204-205.
Capecelatro, Achille. *The Conic Functions.* 15 (1941) 303-314.
Cardoso, Jayme Machado and Carneiro,

David A.S., Jr. *Non-Associative Structures.* 36 (1963) 126-127.
———. *On a Complete Quadrangle Inscribed in a Conic.* 36 (1963) 190-191.
Cargo, Gerald T. *A Connection Between Two Theorems in the Theory of Riemann-Stieltjes Integration.* 39 (1966) 202-203.
——— and Schneider, W.J. *Polynomial Images of Circles and Lines.* 40 (1967) 1-4.
———. *Velocity Averages.* 50 (1977) 257-258.
Carlitz, Leonard. *A Note on Circumscriptible Cyclic Quadrilaterals.* 38 (1965) 33-35.
———. *A Note on Stirling Numbers of the First Kind.* 37 (1964) 318-321.
———. *A Note on Sums of Three Squares in [the Ring] GF[q,x].* 48 (1975) 109-110.
———. *A Note on the Greatest Integer Function.* 47 (1974) 274-277.
———. *A Theorem of Schemmel.* 39 (1966) 86-87.
———. *An Inequality for the Perimeter of the Orthic Triangle.* 39 (1966) 289.
——— and Gould, H.W. *Bracket Function Congruences for Binomial Coefficients.* 37 (1964) 91-93.
———. *Comment on the Paper "Some Probability Distributions and Their Associated Structures."* 37 (1964) 51-52.
———. *Eulerian Numbers and Polynomials.* 32 (1959) 247-260.
———. *Note on a Formula of Hermite.* 33 (1959) 7-11.
———. *Note on the Coefficients of [the Series] cosh x/cos x.* 32 (1959) 132, 136.
———. *Some Congruence Properties of the Legendre Polynomials.* 34 (1961) 387-390.
———. *Some Formulas of Oltramare.* 27 (1954) 189-194.
———. *Some Inequalities for Two Triangles.* 45 (1972) 43-44.
———. *The Coefficients of [the Series] sinh x/sin x.* 29 (1956) 193-197; *Sequels* 31 (1958) 185-191; 32 (1959) 132, 136.
———. *The Multiplication Formulas for the Bernoulli and Euler Polynomials.* 27 (1953) 59-64.
———. *The Product of Two Eulerian Polynomials.* 36 (1963) 37-41.
———. *The Staudt-Clausen Theorem.* 34 (1961) 131-146.
Carlson, C.S. *Note on the Teaching of Mathematical Induction.* 19 (1944) 36.
———. *On a Certain Cube Root.* 11 (1937) 333.
Carneiro, David A.S., Jr. *see* Cardoso, Jayme Machado.
Carpenter, William F. *On the Solution of the Real Quartic.* 39 (1966) 28-30.
Carter, Paula Winn and Stein, F. Max. *The Definition of Functions from Certain Nonlinear Differential Equations.* 38 (1965) 96-101.
Cater, F.S. *see* Williams, V.C.
Cavallaro, Vincenzo. *On Brocard's Ellipse.* 14 (1940) 445-448.
Cavior, Stephan R. *The Subgroups of the Dihedral Group.* 48 (1975) 107.
Cell, John W. *Solution of Certain Linear Boundary Value Problems by Use of Finite Transforms.* 40 (1967) 200-206.
Cerimele, B.J. *Extensions on a Theme Concerning Conditionally Convergent Series.* 40 (1967) 120-128.
Chakerian, G.D. and Lange, L.H. *Geometric Extremum Problems.* 44 (1971) 57-69.
——— and Klamkin, Murray S. *Minimal Covers for Closed Curves.* 46 (1973) 55-61.
——— and ———. *Minimum Triangles Inscribed in a Convex Curve.* 46 (1973) 256-260.
———; Sallee, G.T. and Klamkin, Murray S. *On the Butterfly Property.* 42 (1969) 21-23.
———. *The Orthic Triangle and an Inequality of Euler.* 46 (1973) 219-220.
Chalkley, Roger. *A Lattice of Cyclotomic Fields.* 48 (1975) 42-44.
———. *Cardan's Formulas and Biquadratic Equations.* 47 (1974) 8-14.
———. *Circulant Matrices and Algebraic Equations.* 48 (1975) 73-80.
———. *Matrices Derived from Finite Abelian Groups.* 49 (1976) 121-129; *Comment* 49 (1976) 260-261.
———. *Quartic Equations and Tetrahedral Symmetries.* 48 (1975) 211-215.
Chamberlin, Eliot and Wolf, James. *A Decision Method for Trigonometric Identities.* 27 (1953) 75-77.
Chand, D.R. and Kapur, S.S. *On Convex Polyhedra.* 43 (1970) 202-209.
Chao, Howard. *A Generalization of Eisenstein's Criterion.* 47 (1974) 158-159.
Chapman, Thomas A. *An Extension of the Kuratowski Closure and Complementation Problem.* 35 (1962) 31-35.
Charosh, Mannis. *Unifying Elementary Mathematics by Means of Fundamental Concepts.* 19 (1944) 78-90.
Chatterjea, S.K. *On Congruence Properties of Legendre Polynomials.* 34 (1961) 329-336; *Correction* 35 (1962) 72.
Chen, Louis H.Y. and Yap, Leonard Y.H. *On (p,q)-Continuous Functions.* 48 (1975) 30-33.
Chen, Tzer-Lin. *Approximate Trisection of an Angle with Euclidean Tools.* 39 (1966) 261-264.
———. *Proof of the Impossibility of Trisecting an Angle with Euclidean Tools.* 39 (1966) 239-241.
Chen, Wai-Kai. *Boolean Matrices and Switching Nets.* 39 (1966) 1-8.

Cheney, E.W. *An Elementary Proof of Jackson's Theorem on Mean-Approximation.* 38 (1965) 189-191.
Cheney, Wm. Fitch, Jr. *Rational Approximations for Trigonometric Functions.* 19 (1945) 341-342.
Chernoff, Paul R. *A "Lattice Point" Proof of the Infinitude of Primes.* 38 (1965) 208.
Chew, James. *Contagious Properties.* 47 (1974) 84-87; *Comment* 47 (1974) 235.
Chiang, Pou-Shun and Macintyre, A.J. *Integers, No Three in Arithmetic Progression.* 41 (1968) 128-130.
Chi-Ho, Loong. *Some Analogs of the Triangle Geometry in the Kasner Plane.* 17 (1942) 8-12.
Childress, Noel A. *Inversion with Respect to the Central Conics.* 38 (1965) 147-149.
Chilton, Bruce L. *Shadows of Four-Dimensional Polytopes.* 44 (1971) 269-273.
———. *The 202 Octagons.* 40 (1967) 206-209.
Chong, Kong-Ming. *The Arithmetic Mean-Geometric Mean Inequality: A New Proof.* 49 (1976) 87-88.
Christiano, John G. and Cormier, Romae J. *A Note on the [Differential] Operator D.* 37 (1964) 343-344.
——— and Wiggin, Albert. *Biorthogonality of Characteristic Vectors.* 42 (1969) 133-135.
——— and Hall, James E. *On the n-th Derivative of a Determinant of the j-th Order.* 37 (1964) 215-217.
Christilles, William Edward. *A Note on a Comment to Problems and Questions [about a Prime Generating Function].* 35 (1962) 47-48.
———. *A Note on the Factorization of Integers.* 33 (1960) 283-286.
———. *A Simple Approach to the Factorization of Integers.* 34 (1961) 411-416.
———. *An Elementary Analysis of the Factorization of Integers and the Determination of Primes by the Use of Integral Binary Quadratic Forms.* 36 (1963) 31-35; *Correction* 37 (1964) 32.
———. *Research and the Mathematician.* 36 (1963) 121-122.
———. *The Theory of Numbers in America Today.* 36 (1963) 188-189.
Church, C.A., Jr. *Combinations and Successions.* 41 (1968) 123-128.
Churchill, Edmund. *A Simple Method for Approximating Logarithms.* 22 (1949) 277-278.
Cicero-Pienkowski, Jerzy. *Graphical Construction to Find Approximate Length of the Circumferance of a Circle.* 30 (1956) 91-92.
Clair, Harry S. *An Algebraic Method for Finding the Critical Values of the Cubic Function.* 32 (1958) 31-32.
———. *Euclid's Algorithm and its Applications.* 28 (1954) 71-82.
Clark, C.E. *Proofs of the Fundamental Theorems of Spherical Trigonometry.* 21 (1948) 151-155.
Clever, C.C. and Yocom, K.L. *A Generalization of a Putnam Problem.* 49 (1976) 135-136.
Clive, W.R. *A Worth While Experiment [in Education].* 5:3 (1930) 6-8.
Clough, Anne Reseigh and Dickinson, David. *On the Solution of Linear Homogeneous Differential Equations.* 35 (1962) 235-239.
Coburn, N. *Discontinuities in Compressible Fluid Flow.* 27 (1954) 245-264.
Coburn, R.K. *An Analytical Method for Solving Basic Inequalities.* 34 (1961) 345-348.
Cockayne, E.J. and Melzak, Z.A. *Euclidean Constructibility in Graph-Minimization Problems.* 42 (1969) 206-208.
———. *On Fermat's Problem on the Surface of a Sphere.* 45 (1972) 216-219.
Coffman, Raphael T. *A Study of Conic Section Orbits by Elementary Mathematics.* 36 (1963) 271-280.
———. *An Elementary Approach to the Use of the Rate of Change Concept for Solving Problems.* 30 (1956) 81-90.
——— and Ogilvy, S.C. *The "Reflection Property" of the Conics.* 36 (1963) 11-12.
Cohen, Daniel I.A. *Comment on "A Magic Pentagram."* 37 (1964) 49-50.
———. *The Solution of a Simple Game.* 45 (1972) 213-216.
Cohen, Eckford. *A Generalized Euler ϕ-Function.* 41 (1968) 276-279.
———. *The Definitions of the Euler and Möbius Functions.* 38 (1965) 14-17.
Cohen, Joel E. *Further Properties of Third Order Determinants.* 35 (1962) 304.
———. *Twisted Determinants That Sum to Zero.* 37 (1964) 267-269.
Cohen, Leon. *Random Walk with Transition Probabilities That Depend on Direction of Motion.* 37 (1964) 248-250.
Cohen, Martin J. *A Partial Solution to a[n Array] Conjecture of Golomb.* 38 (1965) 95.
Cohen, Robert. *Egyptian Fraction Expansions.* 46 (1973) 76-80.
Cohoon, D.K. *The No-Touch Puzzle and Some Generalizations.* 45 (1972) 261-265.
Cole, Jas. P. *Analytical Solution of an Interesting Problem [about Triangles].* 4:6 (1930) 18-20.
Cole, Lena R. *Teaching Subtraction of Signed Numbers.* 7:2 (1932) 6.
Coleman, Edward P. *(I);* Gold, Ben K. *(II);* Howell, John M. *(III)* and Moan, O.B. *(IV). Statistical Decision Procedures in Industry. I: Control Charts by*

Variables. II: Control Charts by Attributes. III: Acceptance Sampling by Attributes. IV: Acceptance Sampling by Variables. 35 (1962) 129-143, 195-210, 259-268; 36 (1963) 1-10.
Coleman, J. Bruce. *Concerning Preparedness for College Algebra at the University of South Carolina.* 9 (1934) 67-68.
———. *The Timing of High School Algebra as Related to Success in College Algebra.* 6:4 (1932) 7.
Colpitts, Julia T. *Mathematics In Japan and China.* 9 (1935) 123-129.
Congleton, James Edmund. *On Teaching a Unit in Plane Geometry.* 7:4 (1933) 16-21.
Conrad, Steven R. *Another Simple Solution of the Butterfly Problem.* 46 (1973) 278-280.
Coogan, Daniel. *see* Gabai, Hyman.
Cook, Erben, Jr. *Approximating the Zeros of a Polynomial.* 35 (1962) 165-172.
Cooke, Kenneth L. *A Symbolic Method for Finding Integrals of Linear Difference and Differential-Difference Equations.* 31 (1958) 121-126.
———. *see also* Fraley, Robert.
Cooke, W.P. *Beginning Statistics at the Track.* 46 (1973) 250-255.
———. *Two-Dimensional Graphical Solution of Higher-Dimensional Linear Programming Problems.* 46 (1973) 70-76.
Cormier, Romae J. and Eggleton, Roger B. *Counting by Correspondence.* 49 (1976) 181-186.
———. *see also* Christiano, John G.
Corzatt, Clifton E. *see* Andrushkiw, Joseph W.
Cote, L.J. and O'Malley, R.P. *Who Reads the Mathematics Magazine?* 45 (1972) 273-278.
Coultrap, M.W. *Apparently a Successful Presentation [: Arithmetic Education].* 6:4 (1932) 9-11.
———. *Miss A's Method of Finding Area of a Floor.* 6:5 (1932) 6-8.
Court, Nathan Altshiller. *Elements at Infinity in Projective Geometry.* 19 (1944) 141-146.
———. *Imaginative Mathematics.* 37 (1964) 14-18.
———. *On the Centroid.* 15 (1941) 271-277.
———. *On the Cevians of a Triangle.* 18 (1943) 3-6.
———. *Reflections on Pure Geometry.* 37 (1964) 337-339.
———. *Theorems, Their Converses and Their Extensions.* 17 (1943) 195-201.
Cowle, Irving M. *Mathematics as a Therapy.* 21 (1948) 285-286.
Cox, H.M. *Pre-Study Examinations in Mathematics.* 17 (1943) 351-359.
Coxeter, H.S.M. *Projective Geometry.* 23 (1949) 79-97.
Craig, Allen T. *On the Difference Between Two Sample Variances.* 11 (1937) 259-262.
Craig, Homer V. *Invariants and Elementary Mathematics.* 13 (1939) 176-182.
———. *On Extensors and the Lagrangian Equations of Motion.* 22 (1949) 245-251.
———. *On Extensors in the Calculus of Variations.* 30 (1957) 175-191.
———. *On the Structure of Certain Tensors.* 21 (1947) 21-29.
———. *Vector Analysis.* 25 (1951) 67-86.
Crain, Karleton W. *A Locus Related to the Euler Line.* 17 (1943) 163-164.
———. *On a System of Circles.* 10 (1936) 302-303.
———. *Two Families of Parallelograms.* 11 (1937) 304-309.
Crawford, R.R. and Wallace, K.D. *On the Number of Subgroups of Index Two--An Application of Goursat's Theorem for Groups.* 48 (1975) 172-174.
Creely, Joseph W. *Some Applications of Finite Differences.* 26 (1953) 189-197.
Crews, Clarence M. *A Pursuit Problem.* 17 (1943) 245-247.
Crocker, Roger. *A Theorem Concerning Prime Numbers.* 34 (1961) 316, 344; *Comment* 35 (1962) 227.
Cross, James T. *A Note on Almost Perfect Numbers.* 47 (1974) 230-231.
Crough, Gerald. *A Pursuit Problem.* 44 (1971) 94-97.
Crowe, D.W. and McKee, Terry A. *Sylvester's Problem on Collinear Points.* 41 (1968) 30-34.
Cunningham, F., Jr. *Choreographic Proof of a Theorem on Permutations.* 43 (1970) 154-155.
———. *Taking Limits Under the Integral Sign.* 40 (1967) 179-186.
Curtis, H.B. *A Graphical Solution of the Cubic.* 12 (1938) 325-326.
Curtiss, J.H. *Elements of a Mathematical Theory of Probability.* 26 (1953) 233-254.
Cvetkov, B. *A Theorem in Applied Linear Algebra.* 37 (1964) 148-152.
Czarnecki, Adam Z. *A Note on the Nets of Rationality.* 41 (1968) 242-244.

D

Damaskos, N.J. *see* Buschman, R.G.
Daniells, Marian E. *Application of Elliptic Functions to Certain Problems in Plane Cubics.* 10 (1936) 127-133.
Dapkus, Frank. *Extension of Feuerbach's Formula.* 40 (1967) 267-268.
Darst, R.B. and Deal, E.R. *Remarks on Limits of Functions.* 48 (1975) 101.
———. *Some Cantor Sets and Cantor Functions.* 45 (1972) 2-7.
Dauben, Joseph W. *C.S. Peirce's Philosophy of Infinite Sets.* 50 (1977) 123-135.

Daus, P.H. *Note on Sums Involving Binomial Coefficients.* 10 (1936) 165-166.
———. *The Founding of Non-Euclidean Geometry.* 7:7 (1933) 12-16.
Davis, Edmund E. *Pairing Teams.* 32 (1958) 99-100.
Davis, Harry F. *On Isosceles Orthogonality.* 32 (1959) 129-131.
Day, James Thomas. *On the Convergence of Taylor Series for Functions of n Variables.* 40 (1967) 258-260.
Daykin, D.E. *An Isoperimetric Problem on a Lattice.* 46 (1973) 217-219.
——— and Eliezer, C.J. *Generalizations of the [Arithmetic Mean] and [Geometric Mean] Inequality.* 40 (1967) 247-250.
———. *Periods of Polynomials Modulo p.* 37 (1964) 274-275.
———. *Rational Triangles and Parallelograms.* 38 (1965) 46-47.
——— and Wilansky, Albert. *Sets of Complex Numbers.* 47 (1974) 228-229.
———. *The Bicycle Problem.* 45 (1972) 1; *Comment* 46 (1973) 161.
———. *see also* Sheng, T.K.
Deakin, Michael A.B. *Functions of a Dual or Duo Variable [Analysis over Complex -like Rings].* 39 (1966) 215-219.
———. *Walking in the Rain.* 45 (1972) 246-253; *Sequel* 46 (1973) 272-276.
———. *see also* Schwartz, Benjamin L.
Deal, E.R. *see* Darst, R.B.
Deans, S.R. *Covariant and Contravariant Vectors.* 44 (1971) 5-8.
De Boor, Carl and Schoenberg, I.J. *Unique Prime Factorization and Lattice Points.* 46 (1973) 198-203.
De Cicco, John. *Equilong Geometry of Third Order Differential Elements.* 19 (1945) 276-282.
———. *General Comparison of Conformal and Equilong Geometries.* 16 (1942) 275-279.
———. *The Magnilong Near-Laguerre Transformations.* 19 (1945) 229-235.
———. *see also* Kasner, Edward.
———. *see also* _____.
Deemer, Bob. *A Recurrence Formula Solution to [the Diophantine Equation] $dy^2 + 1 = x^2$.* 32 (1958) 37-40.
De Fériet, J. Kampé. *On a Property of the Laplacian of a Function in a Two Dimensional Bounded Domain, when the First Derivatives of the Function Vanish at the Boundary.* 21 (1947) 74-79.
De Greiff B., Luis. *Finite Differences and Computation of Polynomials.* 34 (1961) 401-405.
de Koninck, Jean-Marie. *Note on a Function Similar to [the Factorial] n!* 47 (1974) 226.
Dellquest, Wilfrid. *Dig That Math.* 30 (1957) 206, 221.
DeMar, Richard F. *A Simple Approach to Isoperimetric Problems in the Plane.* 48 (1975) 1-12; *Sequel* 48 (1975) 219-221.
———. *The Problem of the Shortest Network Joining n Points.* 41 (1968) 225-231.
Demir, Huseyin. *A Theorem Analogous to Morley's Theorem.* 38 (1965) 228-230.
———. *Maximum Area of a Region Bounded by a Closed Polygon with Given Sides.* 39 (1966) 228-231.
Demos, Miltiades S. *A Note on Laurent Expansions.* 36 (1963) 42.
———. *Class Notes on Series Related to the Harmonic Series.* 46 (1973) 40-41.
———. *see also* Staib, John H. *On the Limit Points of the Sequence {sin n}.* 40 (1967) 210-213; *Comment* 42 (1969) 94.
Denbow, Carl H. *Some Types of Elementary Equations.* 23 (1950) 137-141.
Dence, Thomas P. *Another Euclidean Geometry.* 47 (1974) 125-132.
De Pillis, J. *see* Brenner, J.L.
DeTemple, Duane W. and Robertson, Jack M. *Lattice Parabolas.* 50 (1977) 152-158.
Detrick, Peter. *see* Fraley, Robert.
Deverall, L.I. and Thorne, C.J. *Some Relations Involving Special Functions.* 25 (1952) 183-188.
Diamond, Louis E. *Integers, Unique Factorization and Ideals.* 30 (1956) 29-40.
———. *Introduction to Complex Numbers.* 30 (1957) 233-249.
———. *Irrational Numbers.* 29 (1955) 89-99.
———. *New Meanings for Old Symbols.* 29 (1956) 209-216.
———. *Some Elementary Properties of the Relation, Congruence, Modulo M.* 28 (1955) 213-220; *Comment* 29 (1956) 206-207.
Dickinson, David. *see* Clough, Anne Reseigh.
Dickman, R.F., Jr. *On Conditions Implying Continuity of Real-Valued Functions.* 45 (1972) 201-204.
Diekhans, Carl. *see* Hess, Adrien L.
Dilley, Norman R. *A Decomposition of the Integers to Generate Graphs.* 39 (1966) 30-35.
———; Green, Thomas M. and Hamberg, Charles. *A Transformations for Classes of Geometric Configurations.* 42 (1969) 136-139.
———. *Some Probability Distributions and Their Associated Structures.* 36 (1963) 175-179, 227-231; *Comment* 37 (1964) 51-52.
Dimmick, Edgar L. *Congruence.* 28 (1954) 41-43.
———. *Introducing Symbolic Logic.* 30 (1956) 18-24.

Di Paola, Jane W. *Some Finite Point [Plane] Geometries.* 50 (1977) 79-83.
Divinsky, N. *Bayes' Formula and a priori Probabilities in the Game of Bridge.* 37 (1964) 235-241.
Dobbie, J.M. *Certain Expressions Related to Fourier Series.* 17 (1943) 285-291.
Dolan, W.W. *Early Sundials and the Discovery of the Conic Sections.* 45 (1972) 8-12.
———. *The Ellipse in Eighteenth Century Sundial Design.* 45 (1972) 205-209.
Doole, H.P. *A Contour Integral and First Order Expansion Problem.* 20 (1945) 79-85.
Doran, Robert S. *An Integral Inequality.* 44 (1971) 267.
Dorwart, Harold L. *Beyond Quadratics.* 16 (1942) 231-237.
———. *Concerning a Certain Web of Conics.* 16 (1941) 59-61.
———. *Post-War Blueprint [for Education].* 19 (1945) 194-196.
———. *Values of the Trigonometric Ratios of $\pi/5$ and $\pi/10$.* 17 (1942) 115-116.
Dotson, W.G., Jr. and Savage, R.G. *A Class of Functions Having Elementary Integrals for Arc Length.* 43 (1970) 42-43.
———. *A Note on Complex Polynomials Having Rolle's Property and the Mean Value Property for Derivatives.* 41 (1968) 140-144.
———. *A Note on Generalized Semilinear Transformations.* 43 (1970) 147-149.
———. *Linearization Transformations for Least Squares Problems.* 39 (1966) 178-183.
———. *Local and Uniform Lipschitzianism.* 44 (1971) 103.
Dowling, Roy J. *A Radical Suggestion.* 36 (1963) 59.
Doyle, P.H. *see* Bhargava, T.N.
Dragoo, R.C. *Teaching the Calculus.* 19 (1945) 186-193.
Draim, N.A. *A Division Algorithm with Number Pairs.* 28 (1955) 221-228.
———. *An Algorithm on Divisibility.* 25 (1952) 191-194.
———. *Test for Divisibility by the Use of a Remainder Function.* 31 (1958) 137-140.
Dresher, Melvin. *Games of Strategy.* 25 (1951) 93-99.
Dressler, Robert E. *A Note on Arithmetic Progressions of Length Three.* 45 (1974) 31-34.
Drossos, Constantin. *see* Tan, Peter.
Dudley, Underwood. π_t: *1832-1879.* 35 (1962) 153-154.
Duemmel, James. *Diagonalizing Positive Definite Matrices.* 39 (1966) 226-227.
Duncan, Dewey C. *Generalized Pythagorean Numbers.* 10 (1936) 209-211.
Duncan, Hilda F. *see* Duncan, R.L.
Duncan, R.L. *A Variation of the Buffon Needle Problem.* 40 (1967) 36-38.
——— and Duncan, Hilda F. *Symmetric Groupoids and Rings.* 44 (1971) 127-133.
Dunnington, G. Waldo. *B.F. Thibaut [1775-1832], Early Master of the Art of Teaching and Popularizing Mathematics.* 11 (1937) 318-323.
———. *Biographical Sketch--Otto Neugebauer.* 11 (1936) 14-15.
———. *[Biography:] G.A. Miller as Mathematician and Man: Some Salient Facts.* 12 (1938) 384-387.
———. *Gauss, His Disquisitiones Arithmeticae, and his Contemporaries in the Institut de France.* 9 (1935) 187-192.
———. *In Memoriam: E.J.B. Goursat.* 11 (1937) 190.
———. *Johann Friedrich Pfaff.* 11 (1937) 263-267.
———. *Notes on Lejeune Dirichlet.* 12 (1938) 171-182.
———. *[Obituary:] Émile Picard.* 16 (1942) 186-187.
———. *[Obituary:] U.G. Mitchell, 1872-1942.* 16 (1942) 240-242.
———. *Oslo [Congress] Under the Integral Sign.* 11 (1936) 85-94.
———. *The Gauss Archive and the Complete Edition of His Collected Works, 1860-1933.* 8 (1934) 103-107.
———. *The Historical Significance of Carl Friedrich Gauss in Mathematics and Some Aspects of His Work.* 8 (1934) 175-179.
———. *Vigeland's Monument to Abel in Oslo.* 11 (1936) 145-146.
Dyhikowski, James G. *A Slide-Bee.* 31 (1957) 4.

E

Eagle, Edwin L. *The Log Log Scales of the Slide Rule.* 25 (1951) 101-104.
———. *see also* Funkenbusch, William W.
Eaves. James Clifton. *Off the Beaten Path with Some Differentiation Formulas for the Trigonometric Exponential and Logarithmic Functions.* 26 (1953) 147-152.
———. *Pythagoras, His Theorem and Some Gadgets.* 27 (1954) 161-167.
Eberlein, W.F. *The Circular Function(s).* 39 (1966) 197-201; *Sequel* 41 (1968) 66-70.
Ecklund, E.F., Jr. and Eggleton, Roger B. *A Note on Consecutive Composite Integers.* 48 (1975) 277-281.
Edelstein, M. *Generalizations of the Sylvester Problem.* 43 (1970) 250-254.
Edgar, Hugh M. *Greatest Common Divisors in Algebraic Number Fields.* 45 (1972) 177-179.

———. *see also* Billik, Martin.
Edgett, George L. *The Irrational Number.* 9 (1935) 193-196.
Edington, Will E. *Vitalizing Mathematics [Education].* 12 (1937) 27-38.
Edstrom, Clarence R. *A Boundary Value Problem.* 45 (1972) 149-150.
———. *A Dirichlet Problem.* 45 (1972) 204-205.
———. *A Solution of Laplace's Equation for a Semi-Infinite Strip.* 45 (1972) 254-259; *Comment* 46 (1973) 162.
———. *Application of Fourier Series to Summation of Series.* 40 (1967) 214-216.
Eggleton, Roger B. *see* Ecklund, E.F., Jr.
———. *see also* Cormier, Romae J.
Ehrenburg, D.O. *Shortcut to Summation of Infinite Series.* 39 (1966) 93-96.
Ehret, Harold. *An Approach to Trigonometric Inequalities.* 43 (1970) 254-257.
Eisenman, R.L. *An Easy Way From a Point to a Line.* 42 (1969) 40-41.
Eliezer, C.J. *Elementary Inequalities for Integrals.* 45 (1972) 89-91.
———. *see also* Daykin, D.E.
Ellis, David. *On Metric Representations of Groups.* 26 (1953) 183-184.
———. *Remarks on the Elementary Symmetric Functions.* 32 (1958) 75-78.
Elrod, S.B. *Ellipse Construction Shortcuts.* 26 (1952) 97-99.
Elston, Fred G. *A Generalization of Wilson's Theorem.* 30 (1957) 159-162.
———. *The Last Theorem of Fermat Not Only a Problem of Algebraic Analysis but Also a Probability Problem?* 28 (1955) 150-152.
———. *see also* Heimann, Phil Heinrich.
Emch, Arnold. *A Certain Geometrical Calculus by Van Der Waerden in Connection with the Elliptic Cubic.* 14 (1940) 439-442.
———. *New Models for the Solution of Quadratic and Cubic Equations.* 9 (1935) 162-164.
———. *[Obituary:] Carl Friedrich Geiser.* 12 (1938) 286-289.
———. *Rejected Papers of Three Famous Mathematicians.* 11 (1937) 186-189.
———. *The Plane Quartic of Genus Two.* 12 (1937) 5-12.
Emery, Delbert F. *Is the Tree of Knowledge Getting Top-Heavy?* 19 (1945) 359-362.
Emmons, C.H. *Mathematicians, Right or Left [in Education].* 9 (1935) 166-173.
Enser, Samuel S. *Student [Educational] Progress.* 31 (1958) 154-155.
Epstein, Sheldon and Hochberg, Murray. *A Talmudic Approach to the Area of a Circle.* 50 (1977) 210.
Ercolano, Joseph L. *Geometric Interpretations of Some Classical Inequalities.* 45 (1972) 226.
Erdélyi, A. *The Inversion of the Laplace Transformation.* 24 (1950) 1-6.
Erdös, Paul. *see* Bollobás, Béla.
———. *see also* Bankoff, Leon.
Erskine, William H. *A Note on the Diophantine Equation* $Ax^2 + y^2 = z^2$. 14 (1940) 311-312.
———. *The Use of Index Numbers in Evaluation.* 16 (1942) 252-258.
Espelie, M. Solveig and Joseph, James E. *A Characterization of Continuous Closed Real Functions.* 45 (1972) 200-201.
——— and ———. *Compact Subsets of the Sorgenfrey Line.* 49 (1976) 250-251.
Ettlinger, H.J. *Linear Derivative Inequalities and Differential Equations.* 11 (1936) 126-130.
———. *Mathematics and the Hypotheses of Science.* 11 (1936) 71-77.
———. *Mathematics As An Experimental Science.* 10 (1935) 3-8.
Evans, John Ellis. *Why Logarithms to the Base e Can Justly be Called Natural Logarithms.* 14 (1939) 91-95.
Evans, Leonard. *On "Rotating" Ellipses Inside Triangles.* 44 (1971) 28-33.
Everett, C.J. *Inequalities for the Wallis Product.* 43 (1970) 30-33.
Eves, Howard. *Skew Curves Setting Up a Null System in Space.* 19 (1944) 55-61.
———. *Systems of Particles with a Common Centroid.* 28 (1954) 1-7.
Ewell, John A. *On Sums of Consecutive* k*th Powers,* $k = 1,2$. 48 (1975) 203-207.

F

Fain, Bill W. *Evaluation of Certain Classes of Infinite Numerical Series in Closed Form.* 26 (1953) 121-126.
Falbo, Clement Earl. *Polynomial Solutions of Certain Linear Differential Equations by Differentiation.* 35 (1962) 21-26.
Farnell, Albert B. *Summation of Finite Series with Polynomial Terms.* 17 (1942) 68-69.
Fedëp, Ya. I.M. *The Schnitzelbank School of Mathematical Pedagogy (A How-to-do-it Manual) [Satire].* 34 (1961) 340-343.
Federico, P.J. *The Melancholy [Dürer] Octahedron.* 45 (1972) 30-36; *Comment* 45 (1972) 280.
Feichtinger, Oskar amd McAllister, Byron L. *Binary Relations as Boolean Matrices.* 43 (1970) 8-14.
Feigelstock, Shalom. *Mersenne Primes and Group Theory.* 49 (1976) 198-199.
Feld, J.M. *Polygons as Fundamental Elements in the Geometry of Plane Cubic Curves.* 14 (1940) 367-371.

———. *Roots of Matric Equations.* 10 (1935) 96-98.
———. *The Sum of a Polynomial.* 11 (1937) 213-216.
Feldman, Emanuel. *The Simple-Interest Rate Implied in Installment Payments.* 24 (1951) 278-280.
Ferguson, C.E. *see* Pfouts, Ralph W.
Ferling, J.A. *see* Hyers, D.H.
Fettis, Henry E. *Geometric Properties of the Deltoid.* 19 (1945) 327-335.
———. *On Certain Systems of Conics Satisfying Four Conditions.* 10 (1936) 117-126.
———. *On Various Methods of Solving Cubic Equations.* 17 (1942) 117-130.
———. *The Complete Quadrilateral.* 22 (1948) 19-22.
Fielder, Daniel C. *A Difference Method for Obtaining Z-Transforms.* 37 (1964) 346-348.
Finan, E.J. and McRae, V.V. *Equations Invariant under Root Powering.* 21 (1947) 29-34.
Fine, Arthur. *see* Teller, Paul.
Fine, Nathan J. *Look, Ma, No Primes [$\sqrt{n}$ is Irrational].* 49 (1976) 249; *Comment* 50 (1977) 175.
Fink, A.M. *A Note on the Fair Division Problem.* 37 (1964) 341-342.
Finkel, Benjamin F. *A History of American Mathematical Journals [Parts I-XIX].* 14 (1940) 197-210, 261-270, 317-328, 383-407, 461-468; 15 (1940) 27-34, 83-96, 121-128; 15 (1941) 177-190, 245-247, 294-302, 357-368, 403-418; 16 (1941) 64-78; 16 (1942) 188-197, 284-289, 341-344, 381-391; 17 (1942) 21-30.
Finney, Ross L. *Dynamic Proofs of Euclidean Theorems.* 43 (1970) 177-185.
Fisher, B. *A Fixed Point Theorem.* 48 (1975) 223-225.
———. *The Solution of a Certain Quartic Equation.* 45 (1972) 97-98.
———. *see also* Bennett, D.G.
Flanders, Harley. *A Democratic Proof of a Combinatorial Identity.* 44 (1971) 11.
Ford, Lester R. *Circular Arc Figures.* 10 (1936) 290-293.
Forno, Dora M. *Beginner's Algebra--What and How?* 4:2 (1929) 16-19.
———. *Educational Generalists Versus Subject-Matter Specialists.* 4:8 (1930) 21-22.
———. *Mathematical Abilities are Complex.* 5:3 (1930) 8-14.
———. *Mathematics for Service [: Store Arithmetic].* 4:6 (1930) 13-15.
———. *Modes of Studying Geometry.* 4:1 (1929) 7-9; 4:3 (1929) 5-11.
———. *Notes on the Origin [, History] and Use of Decimals.* 3:8 (1929) 5-8.
———. *The Evolution of Securities.* 5:5 (1931) 12-14.
———. *The Heuristic Method Versus the Lecture Method [of Teaching] in Developing Reflective Thinking.* 5:7 (1931) 3-5.
Forseth, Scott L. *Solid Polyomino Constructions.* 49 (1976) 137-139.
Fort, Tomlinson. *Application of the Summation by Parts Formula to Summability of Series.* 26 (1953) 199-204.
———. *Newtonian Analogues of the Trigonometric and Exponential Functions.* 40 (1967) 5-12.
———. *Taylor's Formula and Stirling's Numbers.* 19 (1945) 163-170.
Foster, Caxton C. *see* Tenney, Richard L.
Foster, James E. *A Number System without a Zero-Symbol.* 21 (1947) 39-41.
———. *Don't Call it Science.* 26 (1953) 209-214; *Reply* 27 (1953) 43-45.
———. *[Educational] Standards--For What?* 24 (1950) 38-41.
Foster, Lorraine L. *see* Bergquist, J.W.
Foster, Malcolm. *Note on Certain Envelopes.* 27 (1954) 268-273.
Fraenkel, A.S. *Economic Traversal of Labyrinths [and Graphs].* 43 (1970) 125-130; *Correction* 44 (1971) 12.
Fraley, Robert; Cooke, Kenneth L. and Detrick, Peter. *Graphical Solution of Difficult Crossing Puzzles.* 39 (1966) 151-157.
Frankel, Sidney. *Complete Approximate Solutions of the [Trigonometric] Equation $x = \tan x$.* 11 (1937) 177-182.
Franklin, S.P. and Lindsay, John W. *Straddles on Semigroups.* 34 (1961) 269-270.
Franks, J. Russell. *Some New Intrinsic Properties of Cubics and Quartics.* 22 (1948) 73-76.
Fréchet, Maurice. *A Note on Simple Correlation.* 32 (1959) 265-268.
———. *Abstract Sets, Abstract Spaces and General Analysis.* 24 (1951) 147-155.
———. *Mathematics and the Social Sciences.* 21 (1948) 199-211.
———. *On Two New Chapters in the Theory of Probability.* 22 (1948) 1-12.
Freeman, J.W. *The Number of Regions Determined by a Convex Polygon.* 49 (1976) 23-25.
Freitag, Arthur H. *see* Freitag, Herta Taussig.
Freitag, Herta Taussig and Freitag, Arthur H. *A Division Algorithm.* 37 (1964) 153-157.
——— and ———. *Constructions for Certain Circles of Curvature and Related Extreme Problems.* 40 (1967) 145-150.
Freund, John E. *Segment-Functions.* 21 (1948) 261-264.
———. *The Transfer Distribution.* 25 (1951) 63-66.
Friedlen, D.M. and Nashed, M.Z. *A Note*

on One-Sided Directional Derivatives. 41 (1968) 147-150.
Friedman, David. *Multiplicative Magic Squares.* 49 (1976) 249-250.
Fulton, Curtis M. *A Primitive Geometry.* 33 (1959) 27-29.
———. *An Approach to Non-Euclidean Trigonometry.* 22 (1949) 255-262.
———. *Catenary and Tractrix in Non-Euclidean Geometry.* 27 (1953) 79-84.
———. *Differentiation of Logarithms.* 28 (1954) 8.
———. *The Non-Euclidean Projectile.* 25 (1952) 143-146.
———. *Vector Space Axioms for Geometry.* 36 (1963) 299-301, 311, 318.
Fung, Philip. *A Note on Exact Differential Equations of the First Order.* 38 (1965) 131-132.
Funkenbusch, William W. *A Correction and Generalization of Neustadt's Law [Satire].* 31 (1958) 159-161.
———. *A Generalization of Buffon's Needle Problem in Probability.* 24 (1951) 245-248.
———. *A New Probability Model for Bertrand's Paradox.* 35 (1962) 144.
——— and Eagle, Edwin L. *Hyper-Spacial Tit-Tat-Toe or Tit-Tat-Toe in Four Dimensions.* 19 (1944) 119-122.
———. *Maximum Dips by Seismic Methods.* 19 (1945) 171-172.
———. *On Writing the General Term Coefficient of the Binomial Expansion to Negative and Fractional Powers, in Tri-Factorial Form.* 17 (1943) 308-310.

G

Gabai, Hyman and Liban, Eric. *On Goldberg's Inequality Associated with the Malfatti Problem.* 41 (1968) 251-252.
——— and Coogan, Daniel. *On Palindromes and Palindromic Primes.* 42 (1969) 252-254.
Gabelman, Irving J. *Tree of Compositions.* 34 (1960) 95-96.
Gale, David. *Optimal Strategy for Serving in Tennis.* 44 (1971) 197-199.
Gallant, Charles. *Proof without Words: A Truly Geometric Inequality.* 50 (1977) 98; *Comment* 50 (1977) 277.
Gallian, Joseph A. *Computers in Group Theory.* 49 (1976) 69-73; *Comment* 50 (1977) 56.
———. *The Search for Finite Simple Groups.* 49 (1976) 163-180.
Gallin, Daniel and Shapiro, Edwin. *Optimal Investment Under Risk.* 49 (1976) 235-238.
Gandhi, J.M. *An Infinite Descent Method to Prove Pythagorean Principle.* 30 (1957) 250.
———. *Farewell to [the Number] 1955.* 29 (1956) 198-199.
———. *Some Integrals for Genocchi Numbers.* 33 (1959) 21-23.
———. *The Coefficients of [the Series] cosh x/cos x and a Note on Carlitz's Coefficients of sinh x/sin x.* 31 (1958) 185-191; *Comment* 32 (1959) 132, 136; *Sequel* 34 (1960) 37-40.
Gans, David. *Angle of Inclination and Curvature.* 31 (1957) 31-32.
———. *Normal Curve Areas and Geometric Transformations.* 31 (1958) 205-206.
Gardiner, Verna; Lazarus, R.; Metropolis, N. and Ulam, S.M. *On Certain Sequences of Integers Defined by Sieves.* 29 (1956) 117-122; *Sequel* 31 (1958) 277-280.
Gardner, Martin J. and McMahan, C.A. *Rifling Casino Checks.* 50 (1977) 38-41.
Garfunkel, Jack. *see* Bankoff, Leon.
Garg, R.C. and Kumar, Santosh. *The Shortest Connected Graph Through Dynamic Programming Technique.* 41 (1968) 170-173.
Garofalo, A.M. *Similar Solutions to the Generalized Planar Three Body Problem.* 35 (1962) 277-281.
Garrett, Hattie C. *A High School Mathematics Club.* 5:7 (1931) 6-9.
Garrett, Zena. *Perfect Numbers.* 3:6 (1929) 17-19.
Garver, Raymond. *An Evaluation of a Certain Double Integral.* 8 (1933) 38-40.
———. *Compound Interest.* 7:6 (1933) 3-8.
———. *On the Nature of the Roots of a Quartic Equation.* 7:4 (1933) 6-8.
———. *On the Roots of a Cubic and Those of its Derivative.* 6:7 (1932) 24-27.
———. *The Approximation of Real Roots of Equations by Simple Continued Fractions.* 7:2 (1932) 20-22.
Garvin, Alfred D. *A Note on DeMar's "A Simple Approach to Isoperimetric Problems in the Plane" and an Epilogue.* 48 (1975) 219-221.
Gaskell, Robert W. *Divisibility Rules by the Remainder Theorem.* 8 (1934) 81-86.
———; Klamkin, Murray S. and Watson, P. *Triangulations and Pick's Theorem.* 49 (1976) 35-37; *Comment* 49 (1976) 105, 158.
Geist, A. Polter [sic]. *A Note on Matrix Inversion.* 46 (1973) 226.
Gemignani, Michael C. *More on Finite Subsets and Simple Closed Polygonal Paths.* 39 (1966) 158-160.
———. *On Finite Subsets of the Plane and Simple Closed Polygonal Paths.* 39 (1966) 38-41.
———. *On Properties Preserved by Continuous Functions.* 41 (1968) 181-183.
Gentry, F.C. *Analytic Geometry of the Triangle.* 16 (1941) 127-140.
Georges, J.S. *Educational Interests of Teachers of College Mathematics.* 16 (1941) 89-90.

———. *Types of Learning Products of Evaluation of Instruction.* 16 (1941) 90-101.
Gerber, Leon. *The Altitudes of a Simplex are Associated.* 46 (1973) 155-157.
Gere, Brewster H. *The Construction and Use of a Mathematics Placement Test.* 16 (1942) 400-406.
Gibberd, R.W. *see* Grecos, A.P.
Gibson, P.M. *Solutions of [the Fermat Equation] $A^K + B^K = C^K$ in Nonsingular Integral Matrices.* 43 (1970) 275-276.
Giesy, Daniel P. *A Differential-Functional Equation: The Complex Case.* 43 (1970) 263-267.
———. *Still Another Elementary Proof That [the Sum] $\Sigma 1/k^2 = \pi^2/6$.* 45 (1972) 148-149.
Gill, John P. *Elementary Concepts of Functional Means and Dispersions.* 24 (1950) 65-75.
———. *Some Notes on the Mean Difference.* 34 (1961) 223-225.
Gilpin, Michael. *Symmetries of the Trihexaflexagon.* 49 (1976) 189-192.
Gioia, Anthony A. *A Note on Chebyshev's Theorem.* 46 (1973) 95-96.
Gisonti, Frank. *The Most Important Objective in the Teaching of Mathematics.* 27 (1953) 37-38.
Giudici, Reinaldo E. *Quadratic Residues in $GF(p^2)$.* 44 (1971) 153-157.
Givens, Clark. *An Exercise in Vector Identities.* 43 (1970) 153-154.
Glauz, R.D. *On Wrapping of a Closed Surface.* 42 (1969) 27-28.
Glenn, Oliver E. *Mathematics and Autobiography.* 28 (1955) 299-302.
———. *Mathematics and Historiography.* 26 (1953) 205-208.
———. *Mathematica and Reality: A Classic View.* 30 (1957) 117-126.
Godbole, S. *see* Bucher, R.
Godfrey, Edwin L. *Enumeration of the Rational Points Between 0 and 1.* 12 (1938) 163-166.
Goffman, Casper. *A Note on Integration.* 44 (1971) 1-4.
———. *Completeness of the Real Numbers.* 44 (1974) 1-8.
———. *see also* Burckel, R.B.
Gold, Ben K. *see* Coleman, Edward P.
Goldberg, Michael. *Maximizing the Smallest Triangle Made by N Points in a Square.* 45 (1972) 135-144.
———. *On the Densest Packing of Equal Spheres in a Cube.* 44 (1971) 199-208.
———. *On the Minimum Track of a Moved Line Segment.* 47 (1974) 257-267.
———. *On the Original Malfatti Problem.* 40 (1967) 241-247.
———. *Packing of 14, 16, 17 and 20 Circles in a Circle.* 44 (1971) 134-139.
———. *Polyhedral Linkages.* 16 (1942) 323-332.
———. *The Converse Malfatti Problem.* 41 (1968) 262-266.
———. *The Minimum Path and the Minimum Motion of a Moved Line Segment.* 46 (1973) 31-34.
———. *The Packing of Equal Circles in a Square.* 43 (1970) 24-30.
———. *The Peaucellier Linkage on the Surface of a Sphere.* 38 (1965) 308-311.
Goldberg, Myron. *see* Alspach, Brian.
Goldberg, Richard R. *Pseudo-Multiplicative Functions.* 30 (1957) 145-148.
Goldberg, Samuel. *A Direct Attack on a Birthday Problem.* 49 (1976) 130-131; *Comments* 49 (1976) 259; 50 (1977) 174.
Goldberg, Seymour. *On Schwarz's Inequality.* 35 (1962) 300-301.
Goldman, Alan J. *see* Pearl, Martin H.
Golomb, Michael and Haruki, Hiroshi. *An Inequality for Elliptic and Hyperbolic Segments.* 46 (1973) 152-155.
Golomb, Solomon W. *On Representing an Integer as the Harmonic Mean of Integers.* 46 (1973) 241-244; *Comment* 47 (1974) 234.
———. *The "Sales Tax" Theorem.* 49 (1976) 187-189.
Gombert, Jan M. *Coin Strings [and Permutations].* 42 (1969) 244-247.
Gonshor, Harry. *Combinatorial Homotopy Theory and a New Proof that the Second Homotopy Group of the Circle is Trivial.* 37 (1964) 298-300.
———. *Remarks on Asymptotes.* 41 (1968) 197-198.
Goodman, Adolph. *On Integers of the Form $(2^{p-1}-1)/p$.* 16 (1942) 238-239.
Goodman, Victor. *see* Brownawell, Dale.
Goodner, Dwight B. *A Projection of Norm One may not Exist.* 37 (1964) 334-335.
———. *An Extended Mean Value Theorem.* 36 (1963) 15-16.
———. *Conic Sections in the Elliptic Plane.* 34 (1960) 81-94.
Goodrich, Merton Taylor. *A Systematic Method of Finding Pythagorean Numbers.* 19 (1945) 395-397.
———. *On Squares in Arithmetic Progression.* 39 (1966) 87-88.
Goormaghtigh, R. *A Generalization of Euler's Relation in the Triangle.* 15 (1941) 230-231.
Gorowara, Krishan K. *Geometric Conjugate of a Point Relative to Central Quadric Surfaces.* 40 (1967) 260-263.
Gorski, T.M. and Powers, William H. *The First College Course in Algebra.* 13 (1938) 34-36.
Gould, H.W. *A Theorem Concerning the Bernstein Polynomials.* 31 (1958) 259-264.
———. *An Iterative Approximation for Finding the N-th Root of a Number.* 33 (1959) 61-69.

———. *Concerning Diagrams for Determinants.* 36 (1963) 125-126.
———. *Isotone and Antitone Fractions.* 36 (1963) 240-244.
———. *Note on a Paper of Steinberg.* 33 (1959) 46-48.
———. *Some Relations Involving the Finite Harmonic Series.* 34 (1961) 317-321.
———. *The Functional Operator $Tf(x) = f(x+a)f(x+b)-f(x)f(x+a+b)$.* 37 (1964) 38-46.
———. [*The Number*] *Nineteen Hundred and Sixty-Two.* 35 (1962) 36.
———. *see also* Carlitz, Leonard.
Graef, Edward V. and Harris, V.C. *On the Solutions of Three Ancient* [*Greek*] *Problems.* 42 (1969) 28-32.
Graesser, R.F. *An Infinite Set of Formulas Connecting Binomial Coefficients.* 32 (1959) 153-154.
———. *The Parabola of Surety.* 27 (1954) 204; *Comments* 28 (1954) 52-54; 28 (1955) 229-230.
Graham, R.L. *A Fibonacci-Like Sequence of Composite Numbers.* 37 (1964) 322-324.
——— and Pollak, H.O. *Note on a Nonlinear Recurrence Related to $\sqrt{2}$.* 43 (1970) 143-145.
Grant, Douglass L. *Centralizers and Normalizers in Hausdorff Groups.* 48 (1975) 218; *Comment* 49 (1976) 259.
Grant, Harold Sinclair. *Additive Entities, An Extension of Farey Series.* 14 (1940) 256-260.
———. *On a Formula for Circular Permutations.* 23 (1950) 133-136.
Grant, John. *A Non-Truth-Functional 3-Valued Logic.* 47 (1974) 221-223.
———. *Inconsistent and Incomplete Logics.* 48 (1975) 154-159.
Grecos, A.P. and Gibberd, R.W. *A Diagrammatic Solution to "Instant Insanity" Problem.* 44 (1971) 119-124.
Green, John W. *A Note on the Solutions of the Equation $f'(x) = f(x + a)$.* 26 (1953) 117-120.
———. *Exterior Ballistics.* 25 (1951) 87-91.
——— and Valentine, F.A. *On the Arzelà-Ascoli Theorem.* 34 (1961) 199-202.
———. *The Theory of Functions of a Real Variable.* 24 (1951) 209-217.
Green, Thomas M. *Recurrent Sequences and Pascal's Triangle.* 41 (1968) 13-21.
———. *see also* Dilley, Norman R.
Greenberg, Irwin and Robertello, Raymond A. *The Three Factory Problem.* 38 (1965) 67-72.
Greenspan, Donald. *Numerical Analysis and the Dirichlet Problem.* 32 (1959) 177-188.
———. *On Popular* [*Numerical*] *Methods and Extant Problems in the Solution of Polynomial Equations.* 31 (1958) 239-253.
———. *see also* Jackson, Stanley B.
Greenstein, David S. *On the Number of Subsets of a Finite Set.* 43 (1970) 36.
Greenwell, Donald and Johnson, Peter D. *Functions that Preserve Unit Distance.* 49 (1976) 74-79.
Greenwood, Robert E. *Comment on "A Speedy Solution of the Cubic."* 21 (1948) 265-266.
Gref, L.G. *see* Brunk, H.D.
Gregory, Robert T. *On the Convergence Rate of an Iterative Process.* 29 (1955) 63-68.
Grehan, Carrie. *The Graphic Method of Problem Analysis* [*in Education*]. 4:1 (1929) 1-7.
Grey, L.D. *Round Table on Fermat's Last Theorem.* 27 (1954) 274-277.
Gridgeman, N.T. *The 23* [*Combinations of*] *Colored Cubes.* 44 (1971) 243-252.
Griffin, Carroll W. *Significant Figures.* 10 (1935) 20-24.
Grimm, C.A. *A Note on the Vector* [*Cross*] *Product $a \times (b \times c)$.* 43 (1970) 150.
———. *Particular Solutions of Linear Difference Equations with Constant Coefficients.* 36 (1963) 54-59.
———. *Particular Solutions of Second Order Linear Differential Equations with Constant Coefficients.* 32 (1958) 25-30.
Griselle, Thomas. *Proof of Fermat's Last Theorem for $n = 2(8a + 1)$.* 26 (1953) 263.
Groeneveld, Richard and Meeden, Glen. *Seven Game Series in Sports.* 48 (1975) 187-192.
Groetsch, C.W. and King, J.T. *The Bernstein Polynomials and Finite Differences.* 46 (1973) 280-282.
Gross, Oliver. *On the Elementary Approach to Diophantine Equations.* 34 (1961) 259-267.
Grossman, Howard D. *An Algebraic Function of Geometric Figures.* 17 (1943) 168-169.
———. *Applications of an Operator to Algebra and to Number-Theory, with Comments on the Tarry-Escott Problem.* 19 (1945) 385-390.
———. *On the Pell Equation.* 11 (1937) 352-353.
Grummann, H.R. *Note on the Method of "Moment Areas."* 13 (1938) 30-33.
———. *Theory of the Keuffel and Esser Logarithmic Spiral Curve.* 10 (1936) 167-170.
Grünbaum, Branko. *Polygons in Arrangements Generated by n Points.* 46 (1973) 113-119.
——— and Shephard, Geoffrey C. *Tilings by Regular Polygons.* 50 (1977) 227-247.

———. *Venn Diagrams and Independent Families of Sets.* 48 (1975) 12-23.
Guenther, Ronald. *Some Elementary Properties of the Fundamental Solution of Parabolic [Differential] Equations.* 39 (1966) 294-298.
Guilbeau, Lucye. *The History of the Solution of the Cubic Equation.* 5:4 (1930) 8-12.
Gunder, Dwight F. *Coordinating the Teaching of Mathematics in High Schools and Colleges.* 15 (1941) 248-250.
———. *Mathematics and the Engineering Curriculum.* 15 (1941) 419-422.
Guralnick, Robert M. *see* Miller, Michael D.
Gurney, Ginsey. *Numbers.* 38 (1965) 168.
Guthery, Scott. *The Function Game.* 39 (1966) 148-150.
Gwinner, Harry. [*Biography:*] *The Two Wentworths.* 9 (1935) 165.
———. *Construction of Two-Center Ellipse.* 3:1 (1928) 19-20.
———. *Hyperbolic Function Substitution.* 11 (1937) 334-335.
———. *Successful Mathematicians--James Stirling.* 3:3 (1928) 5-7.
———. *The Complex Number in Partial Fractions.* 2:4 (1928) 16.
———. *The Rectification of the Hyperbola.* 8 (1933) 61-62.

H

Haaheim, D. Robert and Stein, F. Max. *Methods of Solution of the Riccati Differential Equation.* 42 (1969) 233-240.
Habermehl, Helen; Richardson, Sharon and Szwajkos, Mary Ann. *A Note on Coefficients of Cyclotomic Polynomials.* 37 (1964) 183-185.
Hackman, Abe. *The Hypergeometric of Gauss.* 7:4 (1933) 10-16; 7:7 (1933) 25-28.
Haggerty, Thomas P. *Existence Theorems.* 37 (1964) 50.
Hagis, Peter, Jr. *A Note on the Rotation of Axes.* 36 (1963) 127-128.
———. *Axis Rotation Via Partial Derivatives.* 43 (1970) 211-212.
———. *On the Number of Prime Factors of a Pair of Relatively Prime Amicable Numbers.* 48 (1975) 263-266.
———. *Relatively Prime Amicable Numbers of Opposite Parity.* 43 (1970) 14-20.
———. *Relatively Prime Amicable Numbers with Twenty-One Prime Divisors.* 45 (1972) 21-26.
Hahn, Hwa S. *A Simple Proof of Aaron's Conjecture on the Farey Series.* 40 (1967) 274.
Hakala, Reino W. *On Integration of Functions of the Form* $e^{ax}f(x)$. 27 (1953) 69-74; *Comment* 28 (1954) 115-119.
Hall, Dick Wick. *Some Concepts of Elementary Topology.* 22 (1949) 267-274.
Hall, James E. *see* Christiano, John G.
Hall, Newman A. *The Solution of the Trinomial Equation in Infinite Series by the Method of Iteration.* 15 (1941) 219-229.
Hall, Wayne and Hight, Donald W. *SAM [Subadditive Multiplicative] Functions.* 41 (1968) 63-66.
Hallerberg, Arthur E. *Indiana's Squared Circle.* 50 (1977) 136-140.
Halmos, Paul R. *Logic from A to G.* 50 (1977) 5-11.
Halsey, Eric. *Characterizing a Family of Complex Polytopes Without Using Complex Coordinates.* 41 (1968) 273-276.
Hamada, Toshio. *see* Michiwaki, Yoshimasa.
Hamberg, Charles. *see* Dilley, Norman R.
Hamilton, Hugh J. *Complex Quantities in the First Course in Differential Equations.* 29 (1955) 83-88.
———. *The Partial Fraction Decomposition of a Rational Function.* 45 (1972) 117-119.
Hamilton, J.D. *see* Amir-Moéz, Ali R.
Hammer, Preston C. *Areas Swept Out by Tangent Line Segments.* 28 (1954) 65-70.
———. *Extended Topology: The Continuity Concept.* 36 (1963) 101-105.
———. *The Midpoint Method of Numerical Integration.* 3:1 (1958) 193-195.
Hansen, Robert C. *Series Representation of Elements in Separable Banach Spaces.* 45 (1972) 190-194.
Hansen, Rodney T. *Modular Palindromes.* 44 (1971) 208-212.
Hapke, Larry and Stein, F. Max. *A Geometric Representation of the Quasi-Trigonometric Functions.* 40 (1967) 111-120.
Harary, Frank. *A Complementary Problem of Nonplanar Graphs.* 35 (1962) 301-303.
———. *Determinants, Permanents and Bipartite Graphs.* 42 (1969) 146-148.
———. *The Two-Triangle Case of the Acquaintance Graph.* 45 (1972) 130-135.
——— and Minc, Henryk. *Which Nonnegative Matrices are Self-Inverse?* 49 (1976) 91-92.
Harborth, Heiko. *On Palindromes.* 46 (1973) 96-99.
Hardman, N.R. and Jordan, J.H. *The Distribution of Quadratic Residues in Fields of Order* p^2. 42 (1969) 12-17; *Comment* 44 (1971) 241; *Sequel* 45 (1972) 194-200.
Harper, Floyd S. *A Method for the Point by Point Construction of Central Conics by Ruler and Compass.* 21 (1947) 55-57.
———. *An Experiment in Selecting Students According to Ability and Measur-*

ing Their Achievement by Common Examinations. 19 (1944) 27-32.
Harris, Elizabeth. *Plane Geometry.* 4:6 (1930) 6-13.
Harris, T.H. *The Attitude of the Louisiana State Department of Education Toward Mathematics.* 5:4 (1930) 3-4.
Harris, V.C. *Solution of Triangles on the Slide Rule.* 31 (1957) 95-97.
———. *see also* Graef, Edward V.
———. *see also* Little, Joyce Currie.
Hart, John B. *Some Notes on the Limit Concept.* 25 (1952) 163-165.
Hart, William L. *Air Corps Recommendations for the Pre-Training of Aviation Cadets.* 16 (1942) 364-367.
Haruki, Hiroshi. *On a Laplace Integral.* 43 (1970) 151-153.
———. *see also* Golomb, Michael.
Harwell, J.T. *The Value of the Study of Solid Geometry.* 5:2 (1930) 13-15.
Hassler, J.O. *A Method of Measuring Effectiveness in Teaching College Mathematics.* 19 (1944) 73-77.
Hastings, Harold M. *see* Baslaw, Ronald S.
Hatch, Hollis D. *Calculus Looks at the Barometer.* 18 (1943) 127-129.
Hausman, Miriam. *Domains of Dominance.* 49 (1976) 92-94.
Hawkins, David and Briggs, W.E. *The Lucky Number Theorem.* 31 (1957) 81-84; *Reprinted* 31 (1958) 277-280.
———. *The Random Sieve.* 31 (1957) 1-3.
Hayashi, Elmer K. *Factoring Integers Whose Digits Are All Ones.* 49 (1976) 19-22.
Heacock, Larry. *A Doodling Problem Involving the Density of Segment-Generated Sets of Points in Regions of a Plane.* 42 (1969) 60-66.
Hearon, John Z. *Bounds on the Roots of a Polynomial.* 49 (1976) 240-242.
———. *Idempotent Matrices with Ninpotent Difference.* 41 (1968) 80-84.
Heath, Steven H. and Wylie, C.R., Jr. *A Geometric Proof of the Nonexistence of [the Projective Geometry] PG_7.* 43 (1970) 192-197.
———. *The Existence of Finite Bolyai-Lobachevsky Planes.* 43 (1970) 244-249.
Hedman, Bruce. *A Sufficient Condition for n-Short-Connectedness [of Graphs].* 47 (1974) 156-157.
Hedrick, E.R. *The Public Usefulness of Mathematics.* 7:4 (1933) 1-5.
Heggins, Lawrence E. *Some Values of the Study of Mathematics.* 6:1 (1931) 3-6.
Heimann, Phil Heinrich and Elston, Fred G. *Round Table on Fermat's Last Theorem [Part I].* 28 (1954) 49-50.
Heinbockel, J.H. *Factorization of Linear Second Order Differential Operators.* 37 (1964) 302-304.
Heinzman, W.P. *Suggestions for Reducing Mortality in Freshman Mathematics.* 14 (1940) 211-213.
Helfenstein, H.G. *Critical Curves in Seismic Exploration.* 31 (1957) 85-90.
Hellman, Morton J. *A Graphical Determination of the Nature of the Roots of a Cubic.* 34 (1961) 221-222.
———. *A Proof of the Sufficiency Condition for Exact Differential Equations of the First Order.* 37 (1964) 273.
Henderson, Archibald. *Differential Equations with Quadrilateral Envelope--Cuspidal and Nodal Loci.* 20 (1945) 51-68.
——— and Lasley, John Wayne, Jr. *On Harmonic Separation.* 13 (1938) 3-21.
Henney, Dagmar Renate. *Bourbaki, A French General--Or a Mysterious Society?* 36 (1963) 252-254.
Henschel, Donald E. and Wadycki, Walter J. *The Computer and Basic Statistics: An Example.* 46 (1973) 192-198.
Herbert, Harriet B. *The Tesseract, $(a+b)^4$: A Demonstration of the Binomial Theorem in Fourth Dimensional Geometry.* 15 (1940) 97-99.
Herzog, Fritz. *Biperiodic Squares.* 48 (1975) 97-100.
Hess, Adrien L. *Certain Topics Related to Constructions with Straightedge and Compasses.* 29 (1956) 217-221.
——— and Diekhans, Carl. *The Number of Segments Needed to Extend a Cube to N Dimensions.* 43 (1970) 189-192.
Hestenes, Magnus R. *An Elementary Introduction to the Calculus of Variations.* 23 (1950) 249-267.
Heuer, G.A. *Continuous Multiplications in R^2.* 45 (1972) 72-77; *Comment* 46 (1973) 160.
Hewitt, Edwin and Zuckerman, Herbert S. *Remarks on the Functional Equation $f(x+y) = f(x)+f(y)$.* 42 (1969) 121-123.
Hickerson, Dean R. *A Note on Congruence Properties of Certain Restricted Partitions.* 48 (1975) 102.
———. *A Relationship Between an Integer and the One with the Reversed Order of Digits.* 47 (1974) 36-39.
Hickerson, T.F. *Formulas for a Curved Road Intersection.* 36 (1963) 245-246.
Hickey, Harry W. *More on Vector Representation of Rigid Body Rotation.* 43 (1970) 38-39.
Hietala, H.J. and Winter, B.B. *Note on a Combinatorial Identity.* 38 (1965) 149-151.
Higgins, Thomas James. *A Note on the Torsion Problem.* 16 (1941) 34-36.
———. *Remarks on a Method for Solving the Torsion Problem.* 17 (1942) 3-7.
Hight, Donald W. *see* Hall, Wayne.
Hilberry, Clarence B. *The Computer's Challenge to Education.* 30 (1957) 149-153.
Hildebrand, S.K. and Milnes, Harold Willis. *An Interesting Metric Space.* 41 (1968) 244-247.

Hill, E.T. *Rings whose Ideals form a Chain.* 47 (1974) 97-98.
Hill, R.G. *see* Scholomiti, N.C.
Hill, Richard D. and Bernet, Glenn H., Jr. *Properties of the Transpose Mapping.* 50 (1977) 151-152.
Hill, Walter W., Jr. *Prisoner's Dilemma, A Stochastic Solution.* 48 (1975) 103-105.
Hillam, Bruce P. *A Generalization of Krasnoselski's Theorem on the Real Line.* 48 (1975) 167-168.
Hillard, Chester R. *A Solution to the Theorem of Apollonius.* 4:4 (1929) 14-15.
Hille, Einar. *Mathematics and Mathematicians From Abel to Zermelo.* 26 (1953) 127-146.
Hills, E. Justin. *Alligation--It's [Educational] Meaning and Use.* 27 (1953) 85-89.
———. *Fundamentals of Beginning Algebra.* 21 (1948) 212-230.
———. *The Grammar of Algebra.* 22 (1948) 83-99.
Hines, Jerome. *A Generalization of the S-Stirling Numbers.* 29 (1956) 200-203.
———. *Foundations of Operator Mathematics.* 25 (1952) 251-261; 28 (1955) 199-207; 29 (1955) 69-76.
———. *On Approximating the Roots of an Equation by Iteration.* 24 (1951) 123-127.
Hinrichsen, J.J.L. *A Ruler and Compass Mapping Problem Associated with the Equilateral Triangle.* 14 (1939) 141-143.
Hirsch, Martin D. *Additive Sequences.* 50 (1977) 264.
Hoag, Jessie May. *Visual Aids in Teaching Geometry.* 14 (1939) 153-159.
Hochberg, Murray. *see* Epstein, Sheldon.
Hodge, Frederick H. *Some General Formulas Suggested by An Elementary Identity.* 10 (1935) 13-17.
Hoeck, John. *Formula for Finding the Day of the Week, for Any Date in the Gregorian Calendar.* 25 (1951) 55.
Hoffman, Anthony E. *The Gram-Schmidt Process is Not so Bad!* 43 (1970) 261-263.
Hoffman, E.J.; Loessi, J.C. and Moore, R. C. *Constructions for the Solution of the m Queens [Chess] Problem.* 42 (1969) 66-72.
Hoffman, Michael J. *Continuity of Inverse Functions.* 48 (1975) 66-73.
Hoffmann, B. *Relativity.* 14 (1939) 5-25.
Hofmann, Josef Ehrenfried. *On the Discovery of the Logarithmic Series and Its Developments in England up to Cotes.* 14 (1939) 37-45.
———. *Ueber die [History of] Quadraturen des Artus de Lionne.* 12 (1938) 223-230.
Hoggatt, Verner E., Jr. *A Type of Periodicity for Fibonacci Numbers.* 28 (1955) 139-142.
———. *Maximum Area in a Corner.* 26 (1952) 95-97.
———. *Multiple Interpretations of Some Integrals.* 34 (1961) 207-210.
———. *Satellite Mechanics.* 34 (1961) 249-257.
——— and Bicknell, Marjorie. *Some Congruences of the Fibonacci Numbers Modulo a Prime P.* 47 (1974) 210-214.
——— *see also* ———.
Hohn, Franz E. *see* Boldyreff, Alexander W.
Holder, Doyne. *Certain Non-factorable Polynomials.* 31 (1957) 80.
Holder, L.I. *see* Langlois, W.E.
Holl, D.L. *Two Graphical Treatments of the Moment of Inertia of a Plane Lamina.* 9 (1934) 18-21.
Holladay, John C. *Some Generalizations of Wythoff's Game and Other Related Games.* 41 (1968) 7-13.
Hood, Rodney T. *A Base Suggestion?* 36 (1963) 218.
———. *Duality and Differential Calculus in the Plane.* 23 (1950) 235-243.
Hooi-Tong, Loh. *Notes on Semirings.* 40 (1967) 150-152.
Hoomani, A.A. and Byrd, J.W. *A Method for Finding the Solution of a Non-Homogeneous Differential Equation with Constant Coefficients.* 38 (1965) 283-286.
Hopper, Claude. *On Some π-Hedral Surfaces in Quasi-Quasi Space [Satire].* 41 (1968) 89-90.
Horadam, A.F. *Fibonacci Sequences and A Geometrical Paradox.* 35 (1962) 1-11.
———. *On Khazanov's Formulae [for Pythagorean Numbers].* 36 (1963) 219-220.
Horadam, E.M. *A Generalised Form of a Theorem on Integer Quotients of Products of Factorials.* 36 (1963) 98-100.
Horton, C.W. *Comments on and additions to H.V. Craig's paper 'On Extensors and the Lagrangian Equations of Motion.'* 23 (1949) 31-32.
Horton, Robert E. *A Note on the Use of Discriminants.* 23 (1950) 247-248.
———. *A Simple Game.* 25 (1951) 53-54.
———. *Geometry in General Education.* 29 (1955) 41-44.
———. *Learning Theories and the Mathematics Curriculum.* 33 (1959) 79-98.
———. *Mathematics in the Engineering Curriculum.* 32 (1959) 137-149.
———. *see also* Howell, John M.
Howell, John M. and Horton, Robert E. *Number Bases and Binomial Coefficients.* 35 (1962) 177-179.
———. *Ordinates for Student's Distribution.* 36 (1963) 255-256.
———. *Statistical Quality Control.* 25 (1952) 155-157.

———. *Strobogrammatic Years [Numbers]*. 34 (1961) 182.
———. *see also* Coleman, Edward P.
Hoyt, J.P. *A Proof of the Moment-Area Theorem*. 30 (1956) 95-97.
Hsu, Chen-Jung. *A Problem of Three Desarguean Pairs of Triangles*. 40 (1967) 255-258.
Hu, Men-Chang and Wang, Ju-Kwei. *On the L'Hôpital Rule for Indeterminate Forms ∞/∞*. 44 (1971) 217-218.
Huang, Charlotte. *see* Mead, Ernest.
Hudson, Carolyn Brauer. *On Pandiagonal Magic Squares of Order 6t + 1*. 45 (1972) 94-96.
Huff, Barthel W. *Another Definition of Independence*. 44 (1971) 196-197.
Huff, Gerald B. *A Novel Algorithm at the Freshman Level*. 21 (1948) 138-144.
———. *On Introducing Arguments into Freshman Algebra*. 28 (1955) 147-148.
Hull, Ralph. *The Representation of Integers in Forms*. 14 (1940) 235-252.
Hunter, J.A.H. *A Note on Sums of Squares of Consecutive Odd Integers*. 42 (1969) 145.
———. *Further Results with [the Prime Generator] N^2-N+A*. 36 (1963) 313-314.
———. *On Representation by a Cube*. 36 (1963) 129.
———. *The Diophantine Equation $X^3 + Y^3 = 9Z^3$*. 38 (1965) 305-306.
———. *[The Polynomial] $N^2 + 21N + 1$ as a Generator of Primes*. 38 (1965) 232.
Hurst, T.T. *On Certain Maximal Values*. 6:2 (1931) 15-17.
Husain,Taqdir. *Some Remarks About Real Almost Continuous Functions*. 40 (1967) 250-254.
Hutcheson, Francis. *Mathematical Social Science--An Early Example*. 47 (1974) 234.
Hyde, Beverly M. *On the Product of Norms of Orthogonal Vectors*. 40 (1967) 141-143.
Hyers, D.H. *Elementary Differential Equations*. 23 (1950) 193-204.
———. *[Obituary:] Aristotle D. Michal, 1899-1953*. 27 (1954) 237-244.
——— and Ferling, J.A. *On the Local Uniqueness Problem for Periodic Surface Waves of Permanent Type in a Channel of Infinite Depth*. 31 (1957) 61-74.
———. *Society for the Improvement of Mathematical Notation and Terminology*. 32 (1959) 203-206.
———. *see also* Ulam, S.M.

I

Inagaki, Masaru. *On the Polar Projection with Respect to Normal Curves*. 31 (1958) 141-153.
Ingalls, Edmund E. *A Slide Rule Solution of a Woolen Mill Problem*. 8 (1933) 54-56.
Ingersoll, Benham M. *Geometric Derivation of the Formula for Integration by Parts*. 18 (1944) 280-283.
Isaacs, Rufus. *Two Mathematical Papers Without Words [Trisecting an Angle, Pythagorean Theorem]*. 48 (1975) 198; *Comment* 49 (1976) 50-51.
Itzinger, Oskar. *The South American Game*. 50 (1977) 17-21.
Ivanoff, Vladimir F. *The Circumradius of a Simplex*. 43 (1970) 71-72.
Iwata,Shikō. *On the Geometry of the n-Dimensional Simplex*. 35 (1962) 273-277.
Izard, Roberta and Wilson, Mary Elizabeth. *Some Applications of Determinants to Geometry*. 6:4 (1932) 19-23.

J

Jackson, Stanley B. and Greenspan, Donald. *Hyperbolic Analytic Geometry*. 28 (1955) 251-269.
———. *Real Solutions of Classes of Polynomial Equations*. 42 (1969) 128-132.
Jacobson, R.A. and Yocom, K.L. *Shortest Paths Within Polygons*. 39 (1966) 290-293.
———. *Spaceland as Viewed Informally from the Fourth Dimension*. 40 (1967) 174-178.
———. *Triple Product Tables*. 38 (1965) 109.
Jacobson, Richard A. *Completely Independent Axioms for a Seminatural System*. 41 (1968) 88-89; *Sequel* 43 (1970) 93-94.
Jacobson, William I. *The Butterfly Problem--Extensions, Generalizations*. 42 (1969) 17-21.
Jaffe, Jeffrey. *Permutation Numbers*. 49 (1976) 80-84; *Comment* 49 (1976) 223.
James, Glenn. *A Classic Roadblock in Efforts to Prove Fermat's Last Theorem*. 32 (1958) 101-102.
———. *A Grass-Root Origin of a Certain Mathematical Concept [in Geometry]*. 29 (1956) 131-133.
———. *A New General Method of Summing Divergent Series*. 22 (1949) 235-244.
———. *A Note on the Solution of Simultaneous Linear Equations*. 32 (1959) 207-209.
———. *Evaluation of Real Roots by Means of Lower Degree Equations*. 19 (1945) 375-384.
———. *Long-Short Lines*. 29 (1956) 254-257; *Comments* 30 (1957) 209-214, 269-271; 31 (1958) 158.
———. *Some Introductory Comments on Fermat's Last Theorem*. 27 (1954) 213-216.

———. *The Cause and Cure of Delinquincy in College Mathematics.* 11 (1937) 274-278.
———. *The Concept--Infinity--Aborning.* 28 (1954) 64.
———. *The Gist of the Calculus.* 22 (1948) 29-46.
———. *The Origin of a Mathematical Concept [: The Symbol].* 7:5 (1933) 3-6.
———. *The Subject or the Student.* 13 (1938) 129-132.
James, Robert C. *Combinatorial Topology of Surfaces.* 29 (1955) 1-39.
———. *Infinite Series and Taylor and Fourier Expansions.* 25 (1952) 269-272; 26 (1952) 21-31.
———. *Linear Functionals as Differentials of a Norm.* 24 (1951) 237-244.
Jelitai, József. *The Fourth International History of Science Congress, Prague, Sept. 22-27, 1937.* 12 (1937) 77-81.
———. *The History of Mathematics in Hungary Before 1830.* 12 (1937) 125-130.
Jenkins, Terry L. *Euclid, You Must Be Kidding [: Geometry Education].* 41 (1968) 34-37.
Jennings, Walter. *Geometrical Aspects of Newton's Method.* 42 (1969) 262-266.
Jennrich, Robert I. and Killgrove, Raymond B. *A Use of Inequalities for Loci in Analytic Geometry.* 35 (1962) 105-106.
Jerrard, R.P. and Temperley, Nicholas. *Almost Perfect Numbers.* 46 (1973) 84-87.
Johnson, Arnold. *Conic Sections by Vector Methods.* 38 (1965) 262-266.
Johnson, B.R. *An Inequality for Conditional Distributions.* 47 (1974) 281-283.
Johnson, Charles A. *A Reflective Approach in the Teaching of Mathematics.* 26 (1952) 35-38.
Johnson, Colonel, Jr. *Groups of Singular Matrices.* 49 (1976) 205-207.
Johnson, James J. *The Permanent Function and the Problem of Montmort.* 46 (1973) 80-83.
Johnson, Paul B. *A Construction of Regular Polygons of pq Sides Leading to a Geometric Proof of rp - sq = 1.* 38 (1965) 164-165.
———. *The Washing of Socks [: Applied Mathematics].* 39 (1966) 77-83.
Johnson, Peter D. *see* Greenwell, Donald.
Johnson, R.P. *Conical Roulettes.* 17 (1943) 202-211.
Johnson, Wm. C., Jr. *Introduction to Heaviside's Calculus.* 12 (1938) 231-241.
Johnsonbaugh, Richard. *Compact and Connected Spaces.* 50 (1977) 24-25.
Johnston, G.E. *see* Amir-Moéz, Ali R.
Jones, Dixon. *A Double Butterfly Theorem.* 49 (1976) 86-87.
Jones, Robert T. and Peterson, Bruce B. *Almost Congruent Triangles.* 47 (1974) 180-189; *Comment* 48 (1975) 177.
Jones, Roger D.H. *Ellipse of Least Eccentricity.* 44 (1971) 216-217.
———. *Use of Matrices for Study of Plane Sections of a Quadric.* 34 (1961) 337-339.
Jones, W.C. *Garrett's Mechanism [for Drawing Curves].* 12 (1937) 118-121.
Jones, W.R. and Landau, M.D. *One-Sided Limits and Integrability.* 45 (1972) 19-21.
Jordan, J.H. and Potratz, C.J. *Complete Residue Systems in the Gaussian Integers.* 38 (1965) 1-12.
——— and Schneider, D.G. *Covering Classes of Residues in Z(√-2).* 44 (1971) 257-261.
———. *On Sums of Inverses of Primes.* 38 (1965) 259-262.
———. *see also* Bergum, G.E.
———. *see also* Hardman, N.R.
Jordan, John Q. and O'Malley, John M., Jr. *An Implication of the Pythagorean Theorem.* 43 (1970) 186-189.
Joseph, James E. *Spaces in which Compact Sets are Closed.* 49 (1976) 90.
———. *see also* Espelie, M. Solveig.
Jucovič, E. and Moon, J.W. *The Maximum Diameter of a Convex Polyhedron.* 38 (1965) 31-32.
Jungck, Gerald. *An Iff Fixed Point Criterion.* 49 (1976) 32-34; *Comment* 49 (1976) 259-260.
Just, Erwin and Schaumberger, Norman. *A Curious Property of the Integer 38.* 46 (1973) 221; *Sequel* 48 (1975) 221-223.
———. *A Note on the Nth Term of the Fibonacci Sequence.* 44 (1971) 199.

K

Kaczynski, T.J. *Note on a Problem [on Integers] of Alan Sutcliffe.* 41 (1968) 84-86.
Kahan, Steven. *A Curious Sequence.* 48 (1975) 290-292; *Comment* 49 (1975) 102-103.
———. *"Eight Blocks to Madness"--A Logical Solution [to the Puzzle].* 45 (1972) 57-65; *Sequel* 47 (1974) 115-124.
———. *k-Transposable Integers.* 49 (1976) 27-28; *Comment* 49 (1976) 102.
———. *On the Smallest Prime Greater than a Given Positive Integer.* 47 (1974) 91-93.
Kai-Meng, Chan. *On An Elementary [Logarithm] Inequality.* 42 (1969) 240.
Kalinowski, Walbert C. and Regan, Francis. *A Postulational Treatment of the Probability for Certain Types of Emissions.* 25 (1952) 175-181.

Kalish, Aida. *see* Kasner, Edward.
Kaltenborn, H.S. *Teaching Centroids and Moments of Inertia Simultaneously.* 16 (1942) 299-304.
Kane, Jonathan M. *Distribution of Orders of Abelian Groups.* 49 (1976) 132-135.
Kapur, S.S. *see* Chand, D.R.
Karpinski, Louis C. *A Problem of Presentation in Trigonometry.* 13 (1939) 240-241.
———. *Copernicus, Representative of Polish Science and Learning.* 19 (1945) 343-348.
Karst, Edgar. *A Simple Iteration Algorism for Generating cos nx and sin nx.* 34 (1961) 271-273.
———. *Algorithms That Use Two Number Systems Simultaneously.* 40 (1967) 91-97.
———. *How to Solve Cyclic Differential Equations.* 37 (1964) 305-308.
Karst, Otto J. *Semi-Complex Functions and their Graphs.* 35 (1962) 282-288.
Kasner, Edward and De Cicco, John. *Geometric Theorems in Dynamics.* 22 (1949) 223-233.
——— and Kalish, Aida. *The Geometry of the Circular Horn Triangle.* 18 (1944) 299-304.
——— and De Cicco, John. *The Osculating Conics of Physical Systems of Curves.* 25 (1952) 117-124.
Kattsoff, Louis O. *Polynomials and Functions.* 33 (1960) 157-160.
Kaucher, John. *A Theorem on Arc Length.* 42 (1969) 132-133.
Kaufman, H. *Harmonic Distortion in Power-Law Devices.* 28 (1955) 245-250.
———. *Modulation Products in Power-Law Devices.* 30 (1956) 9-17.
Keal, Harry M. *Whither Mathematics?* 20 (1945) 21-28.
Kearns, D.A. *On Finite Sets and the Peano Postulates.* 32 (1959) 217-219.
Keeney, R.L. *On the Trinomial Coefficients.* 42 (1969) 210-213.
Keeping, E.S. *A Note on the Well-Ordering of Sets.* 33 (1959) 43-45.
Kefalas, Christos N. *A Formula for the Calculation of the Inertia Moment of Some Geometrical Solids.* 26 (1953) 265-269.
Keiser, Victor H. *see* Burling, James P.
Keller, Joseph B. *Closest Unitary, Orthogonal and Hermitian Operators to a Given Operator.* 48 (1975) 192-197.
Keller, M. Wiles. *A Study of the Angular Velocity About a Point Between the Foci in Keplerian Elliptic Motion.* 12 (1937) 13-20.
Kelly, L.M. *Covering Problems.* 19 (1944) 123-130.
Kelly, Paul J. and Merriell, David. *On the Transpose-Connectivity of Graphs.* 32 (1958) 1-3.
———. *Von Aubel's Quadrilateral Theorem.* 39 (1966) 35-37.
Kenelly, John W. and Sobczyk, Andrew. *Canonical Placement of Simplices.* 41 (1968) 150-152.
Kenna, L.A. *Eccentricity in Ellipses.* 32 (1959) 133-135.
Kennedy, E.C. *A Note on a Certain Trigonometry Equation.* 11 (1937) 332.
———. *A Note on Hummel's Paper.* 16 (1942) 375-376.
———. *Concerning Upper and Lower Bounds of the Roots of a Real Algebraic Equation.* 14 (1939) 76-80.
———. *Root Isolation Through Curve Analysis.* 14 (1940) 373-378.
Kennedy, E.S. *Interrelations Between Mathematics and Philosophy in the Last Three Centuries.* 16 (1942) 290-298.
Kennedy, H. *A Simple Extension of the Aristotelian Definition of Mathematics.* 30 (1957) 207-208.
Kennedy, Robert E. and Busby, Robert W. *nth Root Groups.* 49 (1976) 140-141.
Kenney, J.F. *Characteristic Functions in Statistics.* 17 (1942) 51-67, 99-114.
———. *The Harmonic Mean.* 13 (1939) 171-175.
Kenny, Alice Patricia. *Mathematical Thinking Aids in Intelligent Citizenship.* 27 (1953) 91.
Kenny, F.M. *Simply Derived Formulae for Determining the Third Part of an Arbitrary Angle.* 6:5 (1932) 18-25.
Kershner, R.B. *The Law of Sines and Law of Cosines for Polygons.* 44 (1971) 150-153.
Kesavan, S. *An Interesting Property of Square Matrices.* 44 (1971) 99-101.
Keyton, Nancy. *Sections of n-Dimensional Spherical Cones.* 42 (1969) 80-83.
Kieffer, John C. and Stein, F. Max. *Solution of an Equation in a Linear Algebra by Means of the Minimal Polynomial.* 42 (1969) 114-121.
Killgrove, Raymond B. *Point Set Geometry.* 44 (1971) 115-119.
———. *see also* Jennrich, Robert I.
Kim, Moon. *A Compact Graph Theorem.* 47 (1974) 99.
King, J.T. *see* Groetsch, C.W.
Kittappa, R. *Complex Variables and Line-Coordinates.* 41 (1968) 269-272.
Klamkin, Murray S. *A Note on an n-th Order Linear Differential Equation.* 32 (1958) 33-34.
———. *A Probability of More Heads.* 44 (1971) 146-149.
——— and McLenaghan, R.G. *An Ellipse Inequality.* 50 (1977) 261-263.
———. *An Extension of the Butterfly Problem.* 38 (1965) 206-208; *Sequels* 42 (1969) 17-21, 21-23; 46 (1973) 278, 280; 49 (1976) 86-87.
———. *Circle Through Three Given Points.* 44 (1971) 279-282.

——— and Schlesinger, Ernest C. *Diamond Inequalities.* 50 (1977) 96-98; *Comment* 50 (1977) 276.
———. *Duality in Spherical Triangles.* 46 (1973) 208-211.
———. *Extensions of Some Geometric Inequalities.* 49 (1976) 28-30.
——— and Newman, D.J. *Extensions of the Weierstrass Product Inequalities.* 43 (1970) 137-141.
———. *Geometric Inequalities via the Polar Moment of Inertia.* 48 (1975) 44-46.
———. *On Barbier's Solution of the Buffon Needle Problem.* 28 (1955) 135-138.
———. *On Ruled and Developable Surfaces of Revolution.* 27 (1954) 207-209.
———. *On Some Problems in Gravitational Attraction.* 41 (1968) 130-132.
———. *On Some Soluble Nth Order Differential Equations.* 43 (1970) 272-275.
———. *On the Volume of a Class of Truncated Prisms and Some Related Centroid Problems.* 41 (1968) 175-181; *Correction* 42 (1969) 23.
———. *Perfect Squares of the Form* $(m^2-1)a_n^2+t$. 42 (1969) 111-113.
——— and Newman, D.J. *Some Combinatorial Problems of Arithmetic.* 42 (1969) 53-56.
———. *The Equation of a Sphere.* 42 (1969) 241-242.
———. *see also* Boas, Ralph P., Jr.
———. *see also* Chakerian, G.D.
———. *see also* Bankoff, Leon.
———. *see also* Gaskell, Robert W.
Klarner, David A. *Sequences of kth Powers with kth Power Partial Sums.* 37 (1964) 165-167.
Klee, V.L., Jr. *A Remark on Mathematical Induction.* 22 (1948) 52.
Klimozak, W.J. *A Vectorial Derivation of Cramer's Rule.* 29 (1956) 154-157.
Kline, Morris. *The Harmony of the World* [*Copernicus and Kepler*]. 27 (1954) 127-139.
———. *The Influence of Newtonian Mathematics on Literature and Aesthetics.* 28 (1954) 93-102.
Klosinski, Leonard F. and Smolarski, Dennis C. *On the Reversing of Digits.* 42 (1969) 208-210.
Knuth, Donald E. *Representing Numbers Using Only One 4.* 37 (1964) 308-310.
Kobayashi, Katsutarô. *An Analogue to Clifford's Chain.* 31 (1958) 133-136.
Konečný, Václav. *A Recursive Formula for the Number of Partitions of an Integer N Into m Unequal Integral Parts.* 45 (1972) 91-94.
Konhauser, Joseph D.E. *On a Particular Plane Section of the Torus.* 38 (1965) 161.
———. [*The Integral*] $\int \sec^3 x\, dx$. 38 (1965) 45.
Konnully, Augustine O. *Relation Between the Beta and the Gamma Functions.* 41 (1968) 37-39.
Kormes, J.P. *Coordination of Mathematics and Science Through Student Activities.* 20 (1945) 86-90.
Korn, Henry. *see* Rotando, Louis M.
Kost, Frank. *A Geometric Proof of the Formula for* [*the Logarithm*] *ln 2.* 44 (1971) 37-38.
Kostis, Georgetta J. and Page, Robert L. *A Formula Concerning Twin Primes.* 37 (1964) 193-194.
Köthe, Gottfried. *On the Solution of Equations in an Infinity of Unknowns in Linear Topological Spaces--An Abstract.* 11 (1937) 185.
Kovach, Ladis D. *Ancient Algorithms Adapted to Modern Computers.* 37 (1964) 159-165.
———. *New* [*Numerical*] *Roles for Old Figures.* 35 (1962) 294-297; *Sequel* 36 (1963) 257.
Krajkiewicz, P. *see* Bosch, W.
Krathwohl, W.C. *Five Requirements for Good Teaching.* 22 (1948) 47.
Kraus, G.R. and Neelley, J.H. *A Note on the Rational Plane Cubic Curve.* 14 (1939) 134-137.
Kravitz, Sidney and Penney, David E. *An Extension of Trigg's Table.* 48 (1975) 92-96.
———. *Elementary Observations Concerning Euler's Prime Generating Polynomial* $f(n) = n^2 - n + 41$. 35 (1962) 152; *Sequel* 36 (1963) 313-314.
———. *Packing Cylinders into Cylindrical Containers.* 40 (1967) 65-71.
———. *Solving Maze Puzzles.* 38 (1965) 213-217.
Kreith, Kurt. *Geometric Interpretation of the Implicit Function Theorem.* 36 (1963) 64-65.
Krick, M.S. *Differential Equations Exhibiting Dimensional Homogeneity.* 33 (1959) 99-102.
———. *On the Coefficients of* [*the Series*] *cosh x/cos x.* 34 (1960) 37-40.
Krishnaiah, P.V. *A Simple Proof of Descartes' Rule of Signs.* 36 (1963) 190.
Kruse, Arthur H. *A Note on Linear Differential Equations with Constant Coefficients.* 34 (1961) 391-400, 409-410.
Krzywoblocki, M.Z. *On Certain Cases of Simple Exact Solutions of Flow Equations in a Compressible Imperfectly Viscous Fluid with Particular Conditions.* 22 (1949) 111-123.
Kuang, H.P. *A Note on the Probabilistic Inequalities.* 34 (1961) 245-246.
Kuehls, Ernest A. *The Truth-Value of* $\{\forall, \exists, P(x,y)\}$*: A Graphical Approach.* 43 (1970) 260-261.

Kugel, Peter. [*Number-*] *Neemies*. 36 (1963) 13-15.
Kulik, S. *On the Graphical Solution of Cubic Equations*. 28 (1955) 143-146.
Kuller, Robert G. *Coin Tossing, Probability, and the Weierstrass Approximation Theorem*. 37 (1964) 262-265.
———. *On the Differential Equation* $f' = f \circ g$ *where* $g \circ g = I$. 42 (1969) 195-200.
Kumar, Santosh. *On Fibonacci Sequences and a Geometrical Paradox*. 37 (1964) 221-223.
———. *see also* Garg, R.C.
Kung, S.H.L. *A Note on a Form of Ratio Test*. 41 (1968) 144-146.
Kuo, Y. *A Note on Nonhomogeneous* [*Linear*] *Equations*. 42 (1969) 37-39.
Kupperman, Robert H. and Smith, Harvey A. *A Note on the Equivalence of Five Theorems in Analysis*. 43 (1970) 81-82.
Kurepa, Svetozar. *On* $\sigma(xy) = \sigma(yx)$. 41 (1968) 70-74.

L

Laatsch, Richard G. *Subadditivity is a Rotation Invariant*. 37 (1964) 195-196.
Labelle, Gilbert. *Escalating Integrals*. 38 (1965) 168.
———. *On Particular Products of Functions*. 35 (1962) 214.
Laidacker, Michael A. *A New Necessary and Sufficient Condition for Linear Dependence of Vectors in a Finite Dimensional Vector Space*. 43 (1970) 157-158.
———. *Another Theorem Relating Sylvester's Matrix and the Greatest Common Divisor*. 42 (1969) 126-128.
Lamadrid, Jesús Gil de. *Completion of Seminormed Spaces and the Daniell Process of Extending an Integral*. 33 (1960) 199-210.
Lambek, J. and Moser, Leo. *Some Associative Operations on Integers*. 29 (1955) 59-62.
Lamont, John S.; Maxfield, John E. and Selfridge, R.G. *Similarity Classifications of Complex Matrices*. 34 (1961) 147-152.
Lamperti, John. *Information Retrieval*. 26 (1953) 228-229.
Lan, Chih-Chin. *An Extension of the Mean-Value Theorem in* E_n. 39 (1966) 91-93.
Landau, M.D. *see* Jones, W.R.
Lange, L.H. *On Two Famous Inequalities*. 32 (1959) 157-160.
———. *Successive Differentiability*. 34 (1961) 275-279.
———. *see also* Chakerian, G.D.
Lange, L.J. *A Simple Irrationality Proof for nth Roots of Positive Integers*. 42 (1969) 242-243.
Langer, Rudolph E. *Reflections of a College Teacher on Mathematics in the High School*. 10 (1935) 35-43.
———. *Some General Remarks Concerning Scientific Exposition*. 9 (1934) 12-18, 42-46.
Langford, Eric. *A Problem in Geometrical Probability*. 43 (1970) 237-244.
Langlois, W.E. and Holder, L.I. *The Relation of* [*the Derivatives*] $f'_+(a)$ *to* $f'(a+)$. 39 (1966) 112-120.
Lariviere, R. *A Special Case of a Prime Number Theorem*. 31 (1958) 281.
———. *Bisectors of Supplementary Angles: A New Look*. 33 (1959) 25-26.
———. *Geometric Reinforcement*. 30 (1957) 205-206.
———. *On a Convergence Test for Alternating Series*. 29 (1955) 88.
———. *Polar Symmetry*. 28 (1955) 270.
———. *Two and Two* [*Vectors*] *Are Not Always Four*. 30 (1957) 273-275.
Larsen, Harold D. *On Graphical Approximations to the Mode*. 21 (1947) 35-39.
Larson, Loren C. *A Theorem about Primes Proved on a Chessboard*. 50 (1977) 69-74.
Larson, Roland E. *Normalizing Vogel's Approximation Method*. 45 (1972) 266-269.
Larsson, Robert D. *Harmonic Sets and Circles*. 32 (1958) 35-37.
LaSalle, J.P. *Singular Measurable Sets and Linear Functionals*. 22 (1948) 67-72.
Lasley, John Wayne, Jr. *On the Classification of Collineations in the Plane*. 19 (1944) 11-20.
———. *see also* Henderson, Archibald.
Laufer, Henry. *Finding the Nth Root of a Number by Iteration*. 36 (1963) 157-162; *Comment* 36 (1963) 315-316.
Law, Carol. *Arithmetical Congruences with Practical Applications*. 31 (1958) 221-227.
Lazarus, R. *see* Gardiner, Verna.
Lebell, Don. *The Differential Analyzer*. 25 (1952) 203-204.
Lee, William Y. *On the Representation of Integers*. 47 (1974) 150-152.
Lee, Yong-Jeng. *A Note on Euclid's Algorithm*. 42 (1969) 39-40.
Lehigh University Research Group. *A Matrix Witticism*. 48 (1975) 199.
———. *Products of Triangular Matrices*. 44 (1971) 276.
Lehmer, D.H. *Numerical Notations and Their Influence on Mathematics*. 7:6 (1933) 8-12.
Leighton, Walter. *A Theorem on Rational Zeros of a Polynomial*. 45 (1972) 156-158; *Comment* 45 (1972) 282.
Levi, Leo. *On Infinite Sums of Bessel Functions*. 33 (1959) 108.
Levine, Jack. *A Binomial Identity Related*

to Rhyming Sequences. 32 (1958) 71-74.
———. *Cryptographic Slide Rules.* 34 (1961) 322-328.
Lewin, Mordechai. *On the Steiner-Lehmus Theorem.* 47 (1974) 87-89.
Lewis, Arthur J. *The Solution of Algebraic Equations by Infinite Series.* 10 (1935) 80-95.
Lewis, D.C. *Simple Operational Equations with Constant Coefficients.* 27 (1954) 177-188.
Lewis, F.A. *A Note on Line Segments Connected with a Triangle and Its Related Circles.* 21 (1947) 42-43.
———. *Note on a Quadrilateral Inscribed in a Semicircle.* 17 (1942) 70-71.
Liban, Eric. *see* Gabai, Hyman.
Liebeck, Hans. *Some Generalizations of the 14-15 Puzzle.* 44 (1971) 185-189.
Liff, Allan I. *On Solutions of the [Diophantine] Equation* $x^a + y^b = z^c$. 41 (1968) 174-175.
Ligh, Steve and Neal, Larry. *A Note on Mersenne Numbers.* 47 (1974) 231-233.
Lightstone, A.H. *A Construction for Trisecting the Angle.* 35 (1962) 99-102.
———. *A Remark Concerning the Definition of a Field.* 37 (1964) 12-13; *Sequels* 38 (1965) 94; 39 (1966) 161-162.
———. *Infinitesimals and Integration.* 46 (1973) 20-30.
———. *On exp and log in Elementary Calculus.* 36 (1963) 17-23.
———. *The Notion of "Consequence" in the Predicate Calculus.* 42 (1969) 57-60.
———. *Two Methods of Inverting Matrices.* 41 (1968) 1-7.
Lin, Tien-Hsung. *Notes [on* $\sin(\alpha+\beta)$ *and the Incenter Inequality].* 38 (1965) 158-159; *Comment* 40 (1967) 28.
Lin, Tung-Po. *Maximum Area Under Constraint.* 50 (1977) 32-34.
Lind, D.A. *A Geometric Interpretation of the Solutions of [the Differential Equation]* $y'' = c^2y$. 39 (1966) 273-276.
Lindsay, John W. *see* Franklin, S.P.
Lindstrom, Peter A. *A New Approach to an Old Problem [on the Derivative of* $\sin x$*].* 42 (1969) 88-90.
———. *Evaluation of Double Integrals By Means of the Definition.* 43 (1970) 85-89.
Little, Joyce Currie and Harris, V.C. *Simultaneous Solution of the Three Ancient [Greek] Problems.* 37 (1964) 310-311.
Little, Neil. *The Drawing of Quadric Surfaces.* 14 (1940) 472-476.
Litzinger, Marie. *Real Numbers for Freshmen.* 22 (1949) 263-264.
Liu, Ming-Chit. *The Asymptotic Behavior of a Certain Product.* 45 (1972) 85-88.
Lloyd, Daniel B. *Knocking a Cone into a Cocked Hat.* 31 (1958) 201-204.
———. *Some Old Slants and a New Twist to the Cone.* 34 (1961) 293-296; *Comment* 36 (1963) 67-68.
Locher, Louis. *Goethe's Attitude Toward Mathematics.* 11 (1936) 131-145.
Locker, John L. and Perry, N.C. *Probability Functions for Computations Involving More Than one Operation.* 35 (1962) 87-89.
Lodder, J. *see* Schuurman, W.
Loessi, J.C. *see* Hoffman, E.J.
Lohman, Robert H. and Morrison, Terry J. *Computation of Constrained Plane Sets.* 50 (1977) 201-205.
Long, Calvin T. *Proof of Tepper's Factorial Conjecture.* 38 (1965) 304-305.
Long, Clifford A. *A Note on the Geometry of Zeros of Polynomials.* 44 (1971) 157-159.
———. *Two Definitions of Tangent Plane.* 44 (1971) 212-214.
Longley, W.R. *First Exercise on Differentials.* 10 (1936) 219-226.
Lorey, Wilhelm. *On Dieffenbach's Method for the Solution of Biquadratics.* 11 (1937) 217-220.
Love, J. Barry. *Proof without Words: Cubes and Squares.* 50 (1977) 74.
Lowe, John. *Automatic Computation as an Aid in Aeronautical Engineering.* 25 (1951) 37-42.
Lowston, Walter H. *A Note on an Approximation to the Square of the Circle.* 17 (1942) 81-82.
Lu, C.S. *Some New Properties of the Triangle.* 19 (1945) 398-405.
Lubin, C.I. and Macintyre, A.J. *On e and Its Approximation.* 43 (1970) 98-101.
Ludeke, Carl A. *A Note on Integration.* 14 (1940) 253-255.
Luh, Jiang. *An Elementary Proof of a Theorem of Herstein.* 38 (1965) 105-106.
Lundberg, G.H. *Some Groups of Linear Transformations in the Plane.* 34 (1961) 375-385.
———. *The Dihedral Group of Linear Transformations in the Plane.* 41 (1968) 206-210.
———. *The Icosahedral Group of Linear Transformations in the Plane.* 38 (1965) 80-94.
———. *Transformations of a Conic into Itself.* 32 (1958) 5-17.
Luter, J.G. *Applications of Unity Ratios.* 33 (1959) 30-32.

M

Machover, Maurice. *Ode to the Continuum Hypothesis.* 50 (1977) 94.
———. *On the Wronskian Formula.* 47 (1974) 89-91.
Macintyre, A.J. *see* Chiang, Pou-Shun.

———. *see also* Lubin, C.I.
Macphail, M.S. *Integration of Functions in a Banach Space.* 20 (1945) 69-78.
Madden, Richard. *A Background of Understanding for General Mathematics [Instruction].* 25 (1952) 229-232.
Maddox, A.C. *Concerning Graphical Algebra.* 3:1 (1928) 13-16.
Magid, Andy R. *Trigonometric Identities.* 47 (1974) 226-227; *Comment* 48 (1975) 235.
Maier, E.A. and Niven, Ivan. *A Method of Establishing Certain Irrationalities.* 37 (1964) 208-210.
———. *On the Minimal Rectangular Region Which Has the Lattice Point Covering Property.* 42 (1969) 84-85.
Maish, A.M. *Calculating Machine--Abacus.* 29 (1955) 58.
Maizlish, I. *On Physically Large and Small Quantities.* 4:7 (1930) 22-24.
———. *Where is the [Geometric] Fallacy?* 4:2 (1929) 19-20.
Maizlish, Yetta V. *Infinitesimal and Finite Integration of (1/x).* 4:8 (1930) 19-21.
Makowski, Andrzej. *Infinite Complementing Sets.* 45 (1972) 162-163.
———. *On a Conjecture of Murphy, II [on Primes].* 35 (1962) 281.
———. *On a Formula for Cos nx.* 35 (1962) 243-244.
———. *Remark on the Paper "Sums of Squares of Consecutive Odd Integers" by Brother U. Alfred.* 43 (1970) 212-213; *Comments* 44 (1971) 242; 45 (1972) 279.
Makowski, Gary G. *A Note on Densities of Order Statistics.* 47 (1974) 100-101.
Malešević, Jovan V. *A Direct Proof of the Steiner-Lehmus Theorem.* 43 (1970) 101-102.
Maley, C.E. *Conic Powers of Point Sets.* 38 (1965) 152-158.
———. *Higher Order Approximations to Solutions of Transcendental Systems.* 34 (1960) 97-99.
———. *Note on "The Extension of Pascal's Theorem."* 35 (1962) 109.
———. *The Extension of Pascal's Theorem.* 34 (1961) 289-292.
Malone, Joseph J., Jr. *An Additional Remark Concerning the Definition of a Field.* 38 (1965) 94; *Sequel* 39 (1966) 161-162.
Malraison, Pierre J., Jr. *Subgroups and Equivalence Relations.* 50 (1977) 205-208.
Mancill, Julian D. *The Sine and Cosine Functions.* 36 (1963) 302-311.
Mandan, Sahib Ram. *Harmonic Inversion.* 33 (1959) 71-78.
———. *Orthogonal Tetrahedron.* 31 (1958) 127-131.
Mandelbaum, Joseph and Schild, Albert. *A Property of the Zeros of a Polynomial.* 42 (1969) 247-248.
Manheim, Jerome H. *A Classroom Presentation of the Definite Integral.* 34 (1961) 157-158.
———. *Another Look at Differentiation.* 39 (1966) 89-91.
Mann, Louis S. *A Remark on Fermat's Last Theorem.* 28 (1955) 153-156.
Manvel, Bennet. *Counterfeit Coin Problems.* 50 (1977) 90-92.
——— and Stockmeyer, Paul K. *On Reconstruction of Matrices.* 44 (1971) 218-221.
Marcus, Curt F. *Distance Between Two Points on a Sphere.* 37 (1964) 54.
———. *Points of Polygonal Regions.* 35 (1962) 71-72.
———. *The Stereographic Projection in Vector Notation.* 39 (1966) 100-102.
Marcus, Michael. *An Introduction to Information Theory.* 36 (1963) 207-218.
Marley, Gerald C. *Multiple Subdivisions of the Plane.* 47 (1974) 202-206.
Mather, Roy A. *The Rectifying Curve.* 14 (1940) 449-454.
Mathis, H.F. *A Geometry Problem.* 29 (1956) 277-279.
———. *Conformal Transformation Charts Used by Electrical Engineers.* 36 (1963) 25-30.
———. *The Extension of a Rectangular Matrix of Continuous Functions.* 25 (1951) 3-6.
Matlak, R.F. *A Proof of the Formula Representing the Logarithm as the Limit of a Sequence.* 39 (1966) 64-65.
Matlin, Sam. *Arithmetic Progressions of N Relatively Prime Integers.* 34 (1960) 29-30.
Matthews, G. *Confusion Rings [Satire].* 33 (1960) 282.
Mauclaire, Jean-Loup. *An Identity for the Sum of Digits of Integers in a Given Basis.* 47 (1974) 225.
Mauldon, J.G. *Similar Triangles.* 39 (1966) 165-174.
Maxfield, John E. *A Note on N! [Factorial].* 43 (1970) 64-67.
———. *Graphical Group Representations.* 27 (1954) 169-174.
——— and Maxfield, Margaret W. *The Existence of Integers less than p belonging to* $ep^{r-1} (mod\ p^r)$. 33 (1960) 219-220.
———. *see also* Lamont, John S.
Maxfield, Margaret W. *see* Waugh, Frederick V.
———. *see also* Maxfield, John E.
May, Kenneth O. *Derivatives of Determinants and Other Multilinear Functions.* 38 (1965) 307-308.
———. *The Straight Line Treated by Translation and Rotation.* 22 (1941) 211.

Mazkewitsch, D. *Division of a Power Series by $(1-\alpha x)^n$.* 33 (1960) 291-293.
Mazziotta, Estelle. *The Basic Concepts of Trigonometry.* 22 (1949) 139-150.
———. *The Meaning of Plane Geometry.* 21 (1948) 273-284.
McAllister, Byron L. *The Application of a Function to Unions and Intersections of Sets.* 42 (1969) 93-94.
———. *see also* Feichtinger, Oskar.
McBrien, V.O. *see* Steele, M. Philip, Sr.
McCabe, Robert L. *Theodorus' Irrationality Proofs.* 49 (1976) 201-203.
McCall, Geraldine. *A Unit in Field Mathematics [: Surveying].* 6:3 (1931) 7-12.
———. *A Unit in Graphs.* 6:4 (1932) 3-6.
McClenon, R.B. *Spherical Trigonometry--An Emergency Course.* 18 (1943) 32-36.
McCoy, Dorothy. *Axioms and Their Relations to Secondary School Mathematics.* 6:4 (1932) 11-14.
———. *Continuous Transformations of Finite Homogeneous Spaces.* 10 (1936) 212-218.
———. *Space.* 9 (1935) 155-162.
McCreery, Louis R. *Mathematical Prodigies.* 7:7 (1933) 4-12.
———. *We Should Teach Our Students About Mathematics.* 34 (1961) 153-155.
McCulley, William S. *Notes on Circular and Hyperbolic Functions.* 31 (1957) 33-38.
———. *Some Interesting Algebraic Identities.* 34 (1961) 203-206.
McDaniel, Wayne L. *On the Proof that all Even Perfect Numbers are of Euclid's Type.* 48 (1975) 107-108.
McGiffert, James. *Fermat and Euler.* 9 (1934) 68-69.
———. *Intrinsic Decimals.* 7:3 (1932) 7-10; *Sequel* 8 (1934) 103-107.
———. *Normals to the Parabola.* 7:6 (1933) 12-17.
———. *The Economy of Symmetry.* 12 (1938) 210-212.
———. *The Joy of Mathematics.* 8 (1933) 27-31.
McKee, Terry A. *Quantification of Greek Variables in Calculus.* 50 (1977) 27-29.
———. *see also* Crowe, D.W.
McLenaghan, R.G. *see* Klamkin, Murray S.
McMahan, C.A. *see* Gardner, Martin J.
McRae, V.V. *see* Finan, E.J.
Mead, Ernest; Rosa, Alexander and Huang, Charlotte. *The Game of Sim: A Winning Strategy for the Second Player.* 47 (1974) 243-247.
Meeden, Glen. *see* Groeneveld, Richard A.
Melter, Robert Alan. *A Mathematical Proof--What it Is and What it Should Be.* 34 (1961) 407-409.
———. *A Note on Representation of Abstract Groups as Groups of Motions.* 37 (1964) 330-331.
Melzak, Z.A. *see* Cockayne, E.J.
Mendelsohn, N.S. *The Equation $\phi(x) = k$.* 49 (1976) 37-39.
Menzel, Richard. *Absoluter Geometry.* 41 (1968) 191-197.
Merriell, David. *see* Kelly, Paul J.
Merrill, Lynn L. *Expansion of a Function in Terms of Exponentials.* 11 (1936) 78-84.
———. *[Obituary:] Professor James McGiffert.* 18 (1944) 142-144.
———. *The Build Up of Current In An Iron Clad Circuit.* 14 (1939) 100-102.
Metropolis, N. *see* Gardiner, Verna.
Meyer, Paul R. *A Short Proof of the Urysohn Metrization Theorem.* 43 (1970) 268-269.
Michal, Aristotle D. *Functional Analysis in Topological Group Spaces.* 21 (1947) 80-90.
———. *Integral Equations and Functionals.* 24 (1950) 83-95.
———. *On Bounds of Polynomials in Hyperspheres and Fréchet-Michal Derivatives in Real and Complex Normed Linear Spaces.* 27 (1954) 119-126.
———. *Solutions of Systems of Linear Differential Equations as Entire Analytic Functionals of the Coefficient Functions.* 22 (1948) 57-66.
———. *What Mathematics Means To Me.* 24 (1951) 223.
Michalup, Eric. *On the Summation of Power Series.* 24 (1951) 129-133.
Michiwaki, Yoshimasa; Ōyama, Makoto and Hamada, Toshio. *An Invariant Relation in Chains of Tangent Circles.* 48 (1975) 80-87.
Mifsud, Charles J. *On the Representation of a Possible Solution Set of Fermat's Last Theorem.* 48 (1975) 174-176.
Milenkovic, V. *see* Neidhardt, G.L.
Milkman, Joseph. *The Logarithmic Function is Unique.* 24 (1950) 11-14.
Miller, G.A. *A First [Second,...Eleventh] Lesson in the History of Mathematics.* 13 (1939) 272-277; 14 (1939) 144-152; 15 (1941) 234-244; 17 (1942) 13-20; 17 (1943) 212-220, 341-350; 18 (1943) 67-76; 18 (1944) 261-270; 19 (1944) 64-72; 19 (1945) 286-293; 21 (1947) 48-55.
———. *Mathematical [Historical] Myths.* 12 (1938) 388-392.
Miller, Hugh. *Mathematics and Reality: A Modern View.* 30 (1957) 127-133.
Miller, K.W. *A Calculus Fallacy.* 41 (1968) 90-91.
Miller, Kenneth S. *Construction of the Green's Function of a Linear Differential System.* 26 (1952) 1-8.
Miller, Leroy S. *The Investigative Method vs. the Traditional Method of Studying Plane Geometry.* 6:2 (1931) 6-8.

Miller, Michael D. and Guralnick, Robert M. *Subfields of Algebraically Closed Fields.* 50 (1977) 260-261.
Miller, Robert C., Jr. *Foci of the Conics on a Cone.* 30 (1957) 193-204.
Miller, Walter M. *A Discussion of the Methods of Science, History, Art and Mathematics.* 10 (1936) 200-204.
Milner, Billy E. *A Note on the Graphs of Groups.* 45 (1972) 45.
Milnes, Harold Willis. *see* Hildebrand, S.K.
Milnes, Paul. *Continuity of Coordinate Functionals.* 49 (1976) 139.
Mills, C.N. *Construction of the Position and Extent of the Axes of an Ellipse, Given a Pair of Semi-Conjugate Diameters.* 26 (1953) 227-228.
———. *Formulas Suitable for Machine Computation for the Mean, Standard Deviation, and Coefficient of Correlation for a Composite Group in Terms of Similar Indices of Its Subgroups.* 15 (1941) 395-398.
———. *More About the Normal Equation of the Line $Ax + By + C = 0$.* 34 (1960) 35.
Millsaps, Knox. *Infinity--Its Cause and Cure.* 17 (1943) 258-260.
Minc, Henryk. *see* Harary, Frank.
Minda, Carl David. *Analytic Functions on Nonopen Sets.* 46 (1973) 223-224.
Miser, Hugh J. *Regions and their "Patterns" in Conformal Mapping.* 16 (1942) 333-337.
Miser, Wilson L. *Descartes' Method of Tangents.* 7:7 (1933) 16-21.
———. *Summing Series Whose General Terms are Polynomials.* 6:7 (1932) 17-19.
———. *The [Arithmetic] Operations on Signed Numbers.* 7:3 (1932) 3-5.
———. *The Dialytic Method for Solving Simultaneous Equations.* 7:2 (1932) 16-20.
Mitchell, B.E. *On Arithmetic Methods in Elementary Algebra.* 26 (1953) 153-154.
———. *On the French Method of Long Division.* 26 (1953) 154.
———. *Sextant and Bi-Sextant Triangles.* 5:1 (1930) 19-24, 15-18.
———. *Sextantal Trigonometry.* 5:5 (1931) 17-20.
Mitchell, U.G. *The Study and Teaching of the History of Mathematics.* 13 (1938) 22-29.
Moan, O.B. *see* Coleman, Edward P.
Mode, Elmer B. *The Two Most Original Creations of the Human Spirit [Mathematics and Music].* 35 (1962) 13-20.
Mong, Shaw. *A Note on Dini's Theorem.* 38 (1965) 107-108.
Montague, Harriet F. *Envelopes Associated with a One-Parameter Family of Straight Lines.* 13 (1938) 73-75.
———. *Textbooks, Reference Books or Story Books.* 11 (1936) 152-153.
———. *Tutorial Work in Mathematics at the University of Buffalo.* 24 (1951) 207-208.
Monzingo, M.G. *On Group Elements of Order Two.* 44 (1971) 97-99.
Moon, J.W. *Disjoint Triangles in Chromatic Graphs.* 39 (1966) 259-261.
——— and Moser, Leo. *On Chromatic Bipartite Graphs.* 35 (1962) 225-227.
———. *see also* Alspach, Brian.
———. *see also* Jucovič, E.
Moore, Douglas H. *Complex Number Algebra as a Simple Case of Heaviside Operational Calculus.* 43 (1970) 269-272.
———. *Distance from Line to Point.* 38 (1965) 219-221.
Moore, R.C. *see* Hoffman, E.J.
Moorman, R.H. *The Influence of Mathematics on the Philosophy of Descartes.* 17 (1943) 296-307.
———. *The Influence of Mathematics on the Philosophy of Leibniz.* 13 (1944) 131-140.
———. *The Influence of Mathematics on the Philosophy of Spinoza.* 18 (1943) 108-115.
Moran, Daniel A. *Pascal Matrices.* 40 (1967) 12-14.
Moran, W. and Pym, J.S. *On the Construction of the Real Number System.* 43 (1970) 257-259.
Mordell, L.J. *A Linear Form Result in the Geometry of Numbers.* 45 (1972) 152-154.
———. *The Representation of a Gaussian Integer as a Sum of Two Squares.* 40 (1967) 209.
Morduchow, Morris. *Integrals and Equal Division Sums.* 27 (1953) 65-68.
Morelock, J.C. and Perry, N.C. *A Note Concerning Homogeneous Polynomials.* 31 (1957) 75-79.
Moritz, R.F. *Concerning the Factorization of a Certain Symmetric Determinant of Order n.* 4:4 (1929) 9-11.
Morley, R.K. *On Some Maximum-Minimum Problems.* 28 (1955) 273-276.
Morrill, John E. *Finding Truth in Lending.* 50 (1977) 30-32.
———. *The Coset of Solutions of a System of Linear Equations.* 42 (1969) 248-249.
Morris, Chester R. *Electron Trajectories in a Combined Electric and Magnetic Field.* 30 (1957) 251-267.
Morris, Richard. *Mathematical Induction for Freshmen.* 12 (1938) 183-187.
———. *Note on a Problem [on Sum of Squares].* 7:3 (1932) 19-20.
Morrison, Terry J. *see* Lohman, Robert H.
Morse, Marston. *Science in the Modern World.* 28 (1955) 209-211.
Moser, Leo. *A Prime Representing Function.* 23 (1950) 163-164.
———. *An Application of Generating Series.* 35 (1962) 37-38.

———. *On the Danger of Induction.* 23 (1949) 109.
———. *see also* Moon, J.W.
———. *see also* Lambek, J.
Moser, William. *see* Abramson, Morton.
Mott, Thomas E. *On Extrema in n-Variables.* 37 (1964) 167-172.
———. *The Distance Formula and Conventions for Sign.* 35 (1962) 39-42.
Moulton, E.J. *Teaching Mathematics.* 10 (1936) 175.
Mulcrone, T.F. *In Memoriam Samuel T. Sanders 1872-1970.* 43 (1970) 175-177.
———. *On Finding the Characteristics of Logarithms.* 29 (1956) 267.
Murnaghan, F.D. *The Operational Calculus.* 21 (1948) 117-138.
Murray, S.B. *On Certain Deficiencies of College Freshmen in Algebra.* 6:3 (1931) 14-15.
Murty, U.S.R. *On Critical Graphs of Diameter 2.* 41 (1968) 138-140.
Muwafi, Amin. *On the Rational Congruence of Ternary Quadratic Forms.* 37 (1964) 185-187.

N

Nagel, Alexander. *A Self-Defining Infinite Sequence, with an Application to Markoff Chains and Probability.* 36 (1963) 179-183, 231-239.
Nanjundiah, T.S. *A Note on the Logarithmic and Binomial Expansions.* 44 (1971) 23-24.
———. *On Huygens' Approximation To* π. 44 (1971) 221-223.
Naranan, S. *An "Elephantine" Equation.* 46 (1973) 276-278.
Nash, David H. *Rotary Engine Geometry.* 50 (1977) 87-89.
Nashed, M.Z. *On a Moment Problem.* 44 (1971) 268-269.
———. *see also* Friedlen, D.M.
Nassau, J.J. *The Expanding Universe.* 8 (1933) 56-58.
Nathanson, Melvyn B. *Products of Sums of Powers.* 48 (1975) 112-113.
National Bureau of Standards. *Matrix Manipulator.* 32 (1959) 155-157.
Neal, Larry. *see* Ligh, Steve.
Nedumpilly, Sister M. Redempta and Regan, Francis. *On a Generalized Feld Series.* 35 (1962) 91-98.
Neelley, J.H. *A Mathematical Support for the Theory of the Conservation of Energy.* 19 (1945) 283-285.
———. *see also* Kraus, G.R.
Neidhardt, G.L. and Milenkovic, V. *Morley's Triangle.* 42 (1969) 87-88.
Nemitz, William and Reeves, Roy F. *A Mathematical Theory of Switching Circuits.* 33 (1959) 1-6.
Neugebauer, Otto. *The History of Mathematics.* 11 (1936) 17-23.
Neureiter, Paul R. *The Most Powerful Thing in the World [--Zero].* 19 (1945) 244-246.
Neuts, Marcel F. *Are Many 1-1 Functions on the [Infinite Set of] Positive Integers Onto [with Probability One]?* 41 (1968) 103-109.
——— and Purdue, P. *Buffon in the Round.* 44 (1971) 81-89.
———. *Setting the Handicap in Billiards, A Numerical Investigation.* 46 (1973) 119-127.
New, I.C. *Mathematics [Education] as a Character Builder.* 8 (1933) 3-8.
New York Life Insurance Company. *Should Your Child be a Mathematician?* 32 (1958) 103-104.
Newman, D.J. *see* Klamkin, Murray S.
Newman, T.G. *see* Amir-Moéz, Ali R.
Nichols, Irby C. *A Problem in Insurance.* 4:8 (1930) 5-6.
———. *Comparison of One, Three, and Five-Year Fire Insurance Policies.* 16 (1942) 338-340.
———. *Does Mathematics Work?* 14 (1940) 298.
———. *Generalizations of Euclid.* 2:4 (1928) 11-15.
———. *Mathematician and the Carpenter [: Applied Arithmetic].* 4:2 (1929) 21-24.
———. *Plotting the Cubic.* 3:5 (1929) 18-21.
———. *Problems from the Field of Investment.* 3:7 (1929) 14-17.
———. *Rate of Interest Paid on a Certain Installment Purchase.* 6:4 (1932) 14-16.
———. *Saving Time in Calculating Actual Interest from Interest Tables.* 7:4 (1933) 5-6.
———. *The Binomial Theorem.* 8 (1934) 160-162.
———. *The Effective [Interest] Rate Corresponding to a Discount of 1% per Month.* 6:5 (1932) 25-28.
———. *The Egyptians as Pure Mathematicians [History].* 3:8 (1929) 10-13.
———. *The Harmonic Division of a Line.* 4:5 (1930) 15-21.
Nielson, Kay L. *The Use of Mathematics in Government Research.* 21 (1948) 193-195.
Niessen, A.M. *On the Summation of Certain Types of Finite Series.* 18 (1944) 271-275.
Niven, Ivan. *A New Proof of Routh's Theorem.* 49 (1976) 25-27.
——— and Zuckerman, Herbert S. *The Lattice Point Covering Theorem for Rectangles.* 42 (1969) 85-86.
———. *see also* Maier, E.A.
Niven, Scott. *Slicing Boxes Into Cubelets.* 47 (1974) 101-103.
Nordgaard, Martin A. *Notes on Thomas Fantet de Lagny.* 11 (1937) 361-373.

———. *Sidelights on the Cardan-Tartaglia Controversy*. 12 (1938) 327-346.
Nowlan, F.S. and Aucoin, A.A. *Invariants Associated with a Family of Curves*. 37 (1964) 132-138.
———. *The Evaluation of Summations With Binomial Coefficients*. 34 (1961) 161-163.
Nymann, J.E. *A Note on the k-Free Integers*. 48 (1975) 233-234.
———. *Another Generalization of the Birthday Problem*. 48 (1975) 46-47; *Comment* 48 (1975) 292.
Nytch, Stephan. *Formulas for Square Roots*. 30 (1957) 276.

O

O'Brien, Katharine. *Glossary* [*Humor*]. 46 (1973) 38.
———. *Hair* [*Humor*]. 47 (1974) 149.
———. *Mini-Profiles* [*Humor*]. 48 (1975) 199.
Odle, John W. *Mathematical Careers in Military Research*. 25 (1952) 159-162.
Ogilvy, C. Stanley. *A Proof* [*of the Arithmetic Mean-Geometric Mean Inequality*] *that Would Please N.D. Kazarinoff*. 38 (1965) 110.
———. *Extra Dividends From a Calculus* [*Maximization*] *Problem*. 41 (1968) 280-281.
———. *Generating a Hyperboloid*. 39 (1966) 276-277.
———. *The Sequence* {*sin n*}. 42 (1969) 94.
Ogilvy, S.C. *see* Coffman, Raphael T.
Oldenburger, Rufus. *Polynomials Over Fields*. 15 (1940) 3-26.
Olds, Edwin G. *A Fresh Start* [*for Calculus*]. 12 (1938) 290-293.
———. *Questions in Educating Mathematics Teachers for the Secondary School*. 14 (1940) 271-277.
———. *Remarks on the Law of Cosines*. 11 (1937) 324-326.
———. *Teaching the Concept of Directional Derivative*. 10 (1936) 268-275.
———. *We Discover the Meaning of Curvature*. 14 (1940) 469-471.
———. *Why Learn Mathematics?* 13 (1939) 329-335.
Olivier, Donald. *Two Constructions With a Two-Edged Ruler*. 36 (1963) 24.
Olmsted, John M.H. *Matrices and Quadric Surfaces*. 19 (1945) 267-275.
O'Malley, John M., Jr. *see* Jordan, John Q.
O'Malley, R.P. *see* Cote, L.J.
Ommidvar, K. *see* Birnbaum, S.
O'Neill, John D. *Symmetries of the Cayley Group Table*. 47 (1974) 146-149.
O'Quinn, R.L. *A Tangency Problem*. 3:6 (1929) 20-21.
———. *High School and College Mathematics*. 5:6 (1931) 6-11.
———. *Problem of Tangency*. 3:7 (1929) 20-22.
———. *The Freshman* [*Educational*] *Problems*. 5:3 (1930) 2-5.
Osborn, Roger. *A Consideration of the Null Class*. 26 (1953) 175-182.
———. *A Generalization of the Congruence* $r^{x} \equiv x \pmod{p}$. 34 (1961) 349-351.
———. *A "Good" Generalization of the Euler-Fermat Theorem*. 47 (1974) 28-31.
———. *A Mechanical Model which Approximates the Sum of an Annuity*. 32 (1958) 93-95.
———. *Classroom Speculations on a Parachute Problem*. 27 (1954) 265-267.
———. *Mathematics and the Space-Time Problem*. 25 (1952) 147-153.
———. *Savings Account Annuities*. 30 (1956) 25-28.
———. *Some Geometric Considerations Related to the Mean Value Theorem*. 33 (1960) 271-275.
———. *Some Historic and Philosophic Aspects of Geometry*. 24 (1950) 77-82.
O'Toole, A.L. *An Approach to Trigonometry*. 13 (1939) 373-375.
———. *Insights or Trick Methods* [*for Summing Series*]. 15 (1940) 35-38.
———. *Remedial Reading in College Mathematics*. 14 (1940) 329-344.
———. *The Nature of Mathematics*. 13 (1939) 323-328.
Ōyama, Makoto. *see* Michiwaki, Yoshimasa.

P

Packard, Robert W. *On the Solution of Quartic*. 39 (1966) 63.
Page, Robert L. *see* Kostis, Georgetta J.
Pall, Gordon. *The Minimum of a Real, Indefinite, Binary Quadratic Form*. 21 (1948) 255.
Palmer, Edgar M. *Combinatorial Problems in Set-Theoretic Form*. 42 (1969) 32-37.
Pan, T.K. *A Remark on the Quotient Law of Tensors*. 28 (1955) 197-198.
Papp, F.J. *Another Proof of Tepper's Identity*. 45 (1972) 119-121.
Parente, A.R. *see* Arnold, H.E.
Parker, F.D. *Boolean Matrices and Logic*. 37 (1964) 33-38.
———. *Matrices in the Market Place*. 38 (1965) 125-128.
———. *Matrices, Relations, and Graphs*. 34 (1960) 5-9.
———. *On the Derivative of the Logarithmic Function*. 36 (1963) 30.
———. *The Algebra of Reflexive Relations*. 44 (1971) 70-77.
Parker, Russell V. *Representation of* n^{r} *by* n^{p} *Consecutive Gnomons*. 34 (1960) 101-103.

Parker, W. Vann. *Integrating Odd Powers of Sec x.* 10 (1936) 294-296.
———. *Magic Squares.* 8 (1934) 135-138.
———. *On a Family of Curves.* 7:7 (1933) 29-30.
——— and Aucoin, A.A. *On Cubic Diophantine Equations.* 13 (1938) 115-117.
———. *On Lines of a Triangle.* 7:2 (1932) 12-13.
———. *On Tangents to Curves of Even Degree.* 6:3 (1931) 17-20.
———. *Some Observations on the Anchor Ring [Torus].* 6:7 (1932) 19-21.
———. *The Word Transpose in Algebra.* 6:5 (1932) 17-18.
Parry, Charles J. and Perin, David. *Equivalence of Extension Fields.* 50 (1977) 36-38.
Pascual, Michael J. *Iteration and Correction Formulas for the Variance of a Sequence.* 42 (1969) 249-252.
———. *Note on [the Integral]* $\int_a^x t^y dt$. 35 (1962) 175.
———. *Solving Differential Equations without Complex Numbers.* 31 (1957) 93-94.
———. *The Derivatives of the Trigonometric Functions.* 31 (1957) 39-40.
Paul, Jerome L. *Some Extremal Problems in Elementary Probability Theory.* 47 (1974) 79-84.
Paulson, Edward. *A Note on the Distribution of the Median.* 14 (1940) 379-382.
Pavlick, Frank. *If n Lines in the Euclidean Plane Meet in 2 Points Then They Meet in at Least n-1 Points.* 46 (1973) 221-223.
Pawley, Myron G. *New Criteria for Accuracy in Approximating Real Roots by the Newton-Raphson Method.* 15 (1940) 111-120.
Payne, William A. [Erroneously]. *see* Bostick, Lucille M.
Pearl, Martin H. and Goldman, Alan J. *Policing the Market Place.* 50 (1977) 179-185.
Pease, Roger W., Jr. *General Solution to the Occupancy Problem with Variably Sized Runs of Adjacent Cells Occupied by Single Balls.* 48 (1975) 131-134.
Pedoe, Dan. *A Geometrical Interpretation of Certain Algebraic Results.* 47 (1974) 278-279.
———. *Laguerre's Axial Transformation.* 48 (1975) 23-30.
———. *Notes on the History of Geometrical Ideas. I: Homogeneous Coordinates; II: The Principle of Duality.* 48 (1975) 215-217, 274-277.
———. *The Ellipse as an Hypotrochoid.* 48 (1975) 228-230.
———. *The Most "Elementary" Theorem of Euclidean Geometry.* 49 (1976) 40-42; *Comment* 49 (1976) 261.
Peinado, Rolando E. *Note on Modules.* 37 (1964) 266-267.
———. *On Finite Rings.* 40 (1967) 83-85; *Addendum* 40 (1967) 216.
Pellicciaro, E.J. *A Representation Formula for the Solutions of the Second Order Linear Differential Equation.* 43 (1970) 77-80.
Penney, David E. *see* Kravitz, Sidney.
Pennisi, Louis L. *A Method for Finding the Real Roots of Cubic Equations by Using the Slide Rule.* 31 (1958) 211-214; *Comment* 32 (1958) 41-43.
———. *A Method for Solving [the Integrals]* $\int \sin^{2n} ax\,dx$ *and* $\int \cos^{2n} ax\,dx$. 29 (1956) 271-272.
——— and Sjoblom, L. *Remarks on the Inverse Trigonometric and Hyperbolic Functions of a Complex Variable.* 33 (1959) 39-42.
Perin, David. *see* Parry, Charles J.
Perry, N.C. and Morelock, J.C. *A Note on Computation with Approximate Numbers.* 31 (1958) 155-156.
———. *see also* ———.
———. *see also* Locker, John L.
Pervin, William J. *Binary Digital Arithmetic.* 43 (1970) 41-42.
Peters, J.W. *A Configuration Associated with a Tetrahedron.* 14 (1939) 67-75.
———. *Notable Points Associated with a Triangle.* 13 (1938) 122-126.
———. *The Theorem of Morley.* 16 (1941) 119-126.
Peterson, Bruce B. *see* Jones, Robert T.
Petticrew, James W. *General Subtraction.* 43 (1970) 145-147.
Pettigrove, Ruth I. *Written Classwork and Homework.* 5:3 (1930) 14-18.
Pettis, B.J. *Separation Theorems for Convex Sets.* 29 (1956) 233-247.
Pettit, John T. *A Speedy Solution of the Cubic.* 21 (1947) 94-98; *Comment* 21 (1948) 265-266.
———. *Nomographic Solution of the Quintic.* 21 (1948) 266.
Peyser, Gideon. *Note on the Derivatives of the Legendre Polynomials.* 31 (1958) 210.
Pfouts, Ralph W. and Ferguson, C.E. *A Matric General Solution of Linear Difference Equations with Constant Coefficients.* 33 (1960) 119-127.
Philip, Maximilian. *A Note on Simple Interest.* 19 (1945) 414-417.
Philipp, Stanton. *Note on Consecutive Integers Whose Sum of Squares is a Perfect Square.* 37 (1964) 218-220; *Comment* 38 (1965) 106.
Phipps, Cecil G. *Science and Logic.* 36 (1963) 289-294.
Pierce, R. *Cones and the Decomposition of Functionals.* 24 (1951) 117-122.
Pikler, Andrew. *Optimum Selection and Optimum Registration (Equilibrium of Awareness).* 24 (1951) 175-189.
Pinzka, C.F. *A Note on Mathematics and Philosophy.* 34 (1961) 169.

Pipes, Louis A. *Difference Equations and Their Applications*. 32 (1959) 231-246.
———. *Stability of Periodic Time-Varying [Mechanical] Systems*. 30 (1956) 71-80.
Pitcairn, Joel. *On Topological Representation of Groups*. 27 (1953) 92.
Pitts, Richard. *Point Algebra*. 36 (1963) 183-187.
Piza, Pedro A. *Escalator Numbers*. 21 (1947) 91-93.
———. *Fermat Coefficients*. 27 (1954) 141-146.
———. *Kummer Numbers*. 21 (1948) 257-260.
———. *On the Case n = 3, of Fermat's Last Theorem*. 28 (1955) 157-158; *Comment* 29 (1956) 205-206.
———. *On the Squares of Some Triangular Numbers*. 23 (1949) 15-16.
———. *Powers of Sums and Sums of Powers*. 25 (1952) 137-142.
Pogorzelski, H.A. *A Note on Mathematical Notation*. 33 (1959) 24.
———. *On the Origin of Cartesian Symbolism*. 33 (1960) 184.
Pollak, H.O. *see* Graham, R.L.
Pólya, George. *How to Look for the Solution*. 9 (1935) 172-173.
Poole, George D. *Integers and the Sum of the Factorials of Their Digits*. 44 (1971) 278-279; *Comment* 45 (1972) 278.
Poor, Vincent C. *On the Motion of a Rigid Body*. 19 (1945) 391-394.
Potratz, C.J. *see* Jordan, J.H.
Potter, Raymond S. *Teaching Inverse Trigonometric Functions*. 34 (1961) 281-282.
Powers, William H. *see* Gorski, T.M.
Prestrud, Marcia Beckmann. *Hierarchic Algebra*. 36 (1963) 43-53.
Pritchett, J. *Classroom Note on [the Euler Expression for]* e^{ia}. 37 (1964) 82.
Purdue, P. *see* Neuts, Marcel F.
Pursell, Lyle E. *Anti-Isomorphisms vs. Isomorphisms*. 44 (1971) 102-103; *Comment* 44 (1971) 243.
———. *Riemann Integrals as Mappings in Elementary Applications*. 37 (1964) 311-317.
———. *The Practical Man and the Pure Mathematician: A Moral Essay [about Limits]*. 33 (1959) 33-34.
———. *Uniform Approximation of Real Continuous Functions on the Real Line by Infinitely Differentiable Functions*. 40 (1967) 263-265.
———. *see also* Reeves, Roy F.
Pyle, H. Randolph. *Inner Products of Multilinear Vectors*. 37 (1964) 93-100.
———. *Non-Square Determinants and Multilinear Vectors*. 35 (1962) 65-69.
———. *Proportional Metrics in N Variables*. 32 (1959) 261-263.
———. *The Projection of a Vector on a Plane*. 34 (1961) 195-197.
———. *Unique Differential Ratios And Curvilinear Coordinates*. 33 (1960) 193-198.
Pym, J.S. *see* Moran, W.

Q

Quinn, Michael J. *see* Smith, James F.

R

Rabung, John R. *On Applications of van der Waerden's Theorem [on Partitions of Integers]*. 48 (1975) 142-148.
Råde, Lennart. *A Ruin Problem*. 49 (1976) 15-18.
Raifaizen, Claude H. *A Simpler Proof of Heron's Formula*. 44 (1971) 27-28.
Raiford, T.E. *A Note on Chords of a Conic*. 13 (1938) 72.
Raisbeck, Gordon. *Some Examples Illustrating Continuity and Differentiability*. 23 (1949) 17-22.
Rajagopal, A.K. *A Direct Derivation of the Equation of the Director Circle of an Ellipse*. 30 (1957) 158-159; *Comment* 31 (1958) 157.
———. *A Problem in Relativity*. 34 (1960) 10.
Ramler, O.J. *Geometry of the Imaginary Triangle*. 24 (1951) 203-206.
Rankin, W.W. *Arithmetic-Algebra-Geometry, Each as an Aid to the Study of the Other*. 25 (1952) 263-268.
Ransom, William R. *A Hyperbolic Proposal*. 37 (1964) 221.
———. *A Queer Set of Equations*. 22 (1949) 165.
———. *A Relaxation Difficulty*. 36 (1963) 257.
———. *An Old Time Computer*. 27 (1954) 205-207.
———. *Approximations to Square Roots*. 23 (1949) 54-55.
———. *Arithmetic vs. Algebra*. 26 (1953) 275.
———. *Definition Versus Property*. 41 (1968) 266-268.
———. *Guide-Lines*. 24 (1950) 15-18.
———. *Isolate Numbers*. 17 (1943) 268-269.
———. *Keep the Signless Numbers*. 34 (1961) 156.
———. *Omega*. 25 (1952) 277-279.
———. *One Side Tangents*. 29 (1956) 159-160.
———. *Point To Line Distance*. 33 (1960) 218.
———. *Slide Rule Criterion*. 27 (1953) 41.
———. *Sums of Two Squares*. 22 (1949) 220-222.
———. *Tangent Outside the Curve*. 37 (1964) 340-341.

———. *Using Zero and One.* 19 (1944) 33-35.
Rasof, Bernard. *Pascal-Type Triangles for the Fourier Expansions of $2^{n-1}\cos^n x$ and $2^{n-1}\sin^n x$.* 40 (1967) 235-240.
Rauch, S.E. *Cycloidal Motion of Electrons.* 26 (1953) 255-262.
Rayl, Adrienne. *How Do You Subtract?* 3:4 (1928) 9-12.
Read, Cecil B. *Is Mathematics an Exact Science?* 17 (1943) 174-176.
———. *Random Jottings From an Instructor's Notebook.* 18 (1944) 205-211.
———. *Vexing Minor Problems of the Mathematics Curriculum.* 13 (1939) 237-239.
Rebmann, Michael T. and Sentyrz, Frank, Jr. *A Note on Palindromes by Reversal-Addition.* 45 (1972) 186-187.
Recamán Santos, Bernard. *Twelve and its Totitives.* 49 (1976) 239-240; *Comment* 50 (1977) 107.
Redheffer, R.M. *A Note on the Poisson Law.* 26 (1953) 185-188.
———. *A Real-Life Application of Mathematical Symbolism* [*Satire*]. 38 (1965) 103-104.
———. *Analytic Functions Related to Primes.* 24 (1951) 135-138.
———. *Derivation of Certain Partial Differential Equations.* 27 (1954) 195-200.
Reed, Irving S. *A General Isomorphism Theorem for Factor Groups.* 24 (1951) 191-194.
Reed, Kennard W., Jr. *An Extension of an Elementary Theorem* [*L'Hopital's Rule*] *in Calculus.* 42 (1969) 266.
Rees, Warren A. *Angle Partition.* 38 (1965) 160.
Reese, Raymond C. *Quadratic Equations in Engineering Problems.* 18 (1943) 99-105.
Reeve, W.D. *Correlation and Secondary School Mathematics.* 9 (1934) 10-12.
Reeves, Roy F. and Pursell, Lyle E. *An Application of a Cauchy Functional Equation in Elementary Differential Equations.* 29 (1956) 272-273.
———. *see also* Nemitz, William.
Regan, Francis and Rust, Charles. *On Natural Boundaries of a Generalized Lambert Series.* 31 (1957) 45-50.
——— and Wilke, R.L. *On the Nine Point Conic Associated with a Complete Quadrangle.* 44 (1971) 261-266.
———. *see also* Kalinowski, Walbert C.
———. *see also* Nedumpilly, Sister M. Redempta.
Regimbal, Stephen. *An Explicit Formula for the kth Prime Number.* 48 (1975) 230-232; *Comment* 49 (1976) 50.
Reich, Simeon. *On a Problem in Number Theory.* 44 (1971) 277-278; *Comment* 48 (1975) 48.
———. *Schwarz Differentiability and Differentiability.* 44 (1971) 214-216.
———. *Two-Dimensional Lattices and Convex Domains.* 43 (1970) 219-220.
Reid, Walter P. *Line of Flight From Shock Recordings.* 41 (1968) 59-63.
———. *On Some Contradictions in Boundary Value Problems.* 37 (1964) 172-175.
———. *Some Electrical Examples to Illustrate Stokes' Theorem.* 32 (1958) 87-92.
Reis, George E. *Dense Packing of Equal Circles Within a Circle.* 48 (1975) 33-37.
Reklis, Virginia Modesitt. *The Use of Medians in a Testing Program in Mathematics.* 16 (1942) 345-349.
Renaud, Marie Louise. *On Exhibits in Mathematics.* 7:4 (1933) 9.
———. *Using the Mathematics News Letter* [*in Education*]. 8 (1934) 87-88.
Reynolds, Joseph B. *The Mathematics of a Nut Cutter.* 19 (1945) 159-162.
Rhoades, B.E. *Some Special Series.* 34 (1961) 165-167.
Ricardo, Henry J. *Summation of Series by the Residue Theorem.* 44 (1971) 24-26.
Rice, Dorothy. *History of π.* 2:5 (1928) 6-8.
Richards, Ian. *Impossibility.* 48 (1975) 249-262.
Richardson, M. *The Place of Mathematics in a Liberal Education.* 19 (1945) 349-358.
Richardson, Sharon. *see* Habermehl, Helen.
Richert, D.H. *Concerning the Base of the Natural System of Logarithms.* 10 (1936) 205-208.
———. *Concerning the Teaching of the Linear Equation.* 11 (1937) 382-384.
Richeson, A.W. *Hypatia of Alexandria.* 15 (1940) 74-82.
———. *Laplace's Contributions to Pure Mathematics.* 17 (1942) 73-78.
———. *Notes on a 17th-Century English Mathematical Manuscript.* 11 (1937) 165-171.
———. *Notes on an 18th-Century English Mathematical Manuscript.* 11 (1937) 221-230.
———. *Unpublished Mathematical Manuscripts in American Libraries.* 13 (1939) 183-188.
———. *Warren Colburn and His Influence on Arithmetic in the United States.* 10 (1935) 73-79.
Rickey, F.A. *A Problem in Minimum Values.* 13 (1939) 362-366.
———. *An Application of Certain Partial Derived Functions* [*Newton Quotients*]. 4:8 (1930) 9-12.
———. *Introducing the Study of Proportion in High School Geometry.* 6:5 (1932) 8-9.
———. *Major Objectives in Geometry.* 5:5 (1931) 7-11.

———. *On the Path of a Body Falling Freely Within the Earth.* 4:6 (1939) 15-18.
———. *On the Projection of an Angle Upon a Plane.* 11 (1937) 209-212.
———. *Reflections on the Study of Geometry as an Aid to Logical Thinking.* 6:2 (1931) 12-15.
Riddell, R.C. *Upper Bounds on the Moduli of the Zeros of a Polynomial.* 47 (1974) 267-273.
Rigby, J.F. *Inequalities Concerning the Areas Obtained When One Triangle is Inscribed in Another.* 45 (1972) 113-116.
Riley, Martin L. *The First Lessons in Geometry.* 6:5 (1932) 17.
Riley, Martin S. *Introduction and Presentation of the Formula as the First Unit in Ninth Mathematics [: Algebra Education].* 7:1 (1932) 5-10.
Rinehart, R.F. *The Exponential Representation of Unitary Matrices.* 37 (1964) 111-112.
———. *The Modern Mathematical Approach to LR^2H [Satire].* 32 (1959) 151-152.
Ringeisen, R.D. *Isolation, A Game on a Graph.* 47 (1974) 132-138.
Ringenberg, Lawrence A. *Implications of the New High School Mathematics Programs for Teacher Education.* 35 (1962) 229-234.
———. *Numbers and Number Systems.* 31 (1958) 265-276.
Robbins, Charles K. *Analytic Geometry--The Framework of Mathematics.* 22 (1949) 201-210.
Robertello, Raymond A. *see* Greenberg, Irwin.
Robertson, Jack M. *A Comparison of the Archimedean and Completeness Properties.* 43 (1970) 92-93.
———. *see also* DeTemple, Duane W.
Robinson, Donald W. *A Note on a Simple Matrix Isomorphism.* 32 (1959) 213-215.
———. *n-Groups with Identity Elements.* 31 (1958) 255-258.
Robinson, L.V. *Building Triangles with Integers.* 17 (1943) 239-244.
Robinson, Lewis Bayard. *Calculation of a Complete System of Tensors with the Aid of Symbolic Multiplication.* 31 (1957) 5-14.
———. *Introduction to a Study of a Type of Functional Differential and Functional Integral Equations.* 23 (1950) 183-188.
———. *What Mathematics Means to Me.* 25 (1951) 115.
Robinson, P.G. *Trends in Education.* 17 (1943) 221-224.
Robinson, Stephen M. *A Short Proof of Cramer's Rule.* 43 (1970) 94-95.
Robison, Gerson B. *A New Approach to Circular Functions, II, and $\lim (\sin x)/x$.* 41 (1968) 66-70.
———. *Rockers and Rollers [Curves].* 33 (1960) 139-144.
Roby, Marcus A., Sr. *Hyperbolic Functions in Concentric Circles.* 15 (1941) 401-402.
Roca, Lolita. *Children's Difficulties with Reasoning Problems [Education].* 5:1 (1930) 3-11.
Roetman, E.L. *Tangent Planes and Differentiation.* 43 (1970) 1-7.
Rogers, Hartley, Jr. *Information Theory.* 37 (1964) 63-78.
Rolfe, Kathryn B. *A Geometrical Interpretation of the Invariant System of Two Binary Cubics.* 19 (1945) 211-220.
Romer, Eugene M. *A Note on a Theorem in Complex Variables and Applications.* 35 (1962) 173-174.
———. *An Extension of "An Approximation for any Positive Integral Root."* 37 (1964) 187-192.
Ronveaux, André. *Bounds on the Logarithmic Derivative of Solutions of Second Order Differential Equations.* 41 (1968) 231-234.
Rosa, Alexander. *see* Mead, Ernest.
Rose, Gene F. *A Proof Schema for a Class of Theorems.* 25 (1951) 1-2.
Rosenbaum, J. *A Formula for [the sum] $\sum_{x=1}^{x=n} x^p$.* 14 (1940) 193-196.
Rosenberg, Lloyd. *The Iteration of Means.* 39 (1966) 58-62.
Rosenberg, Milton. *Separable Functions and the Generalization of Matricial Structure.* 42 (1969) 175-186.
Ross, Bertram. *Fractional Calculus.* 50 (1977) 115-122.
Ross, W. Bruce. *A Chart of Integral Right Triangles.* 23 (1949) 110-114.
Rosser, Harwood. *Opportunities in Insurance for the Mathematically Trained.* 25 (1952) 205-210.
Rotando, Louis M. and Korn, Henry. *The Indeterminate Form 0^0.* 50 (1977) 41-42.
Roth, Richard. *The Qualifying Examination.* 38 (1965) 166-167.
Rough, Mike. *Some Numbers Related to the Bernoulli Numbers.* 29 (1955) 101-103.
Rovnyak, James. *Ideals of Square Summable Power Series.* 33 (1960) 265-270; *Correction* 34 (1960) 41-42.
Rubin, Jean E. *Finite Sets.* 46 (1973) 183-192.
———. *The Compactness Theorem in Mathematical Logic.* 46 (1973) 261-265.
Rubinstein, Zalman. *On Analytic Functions Satisfying the Mean Value Theorem and a Conjecture of W.G. Dotson.* 42 (1969) 256-259.
Russell, A.M. *An Extension of a Mean Value Theorem.* 42 (1969) 124-126.
Russell, Dennis C. *Concerning the Parabola of Surety by R.F. Graesser in V. 27, No. 4.* 28 (1954) 52-54.

Russell, Helen H. *To Young Instructors of Mathematics.* 22 (1948) 54-55.
Rust, Charles. *see* Regan, Francis.
Rutt, Norman E. *Grades and Distributions.* 18 (1943) 120-126.
———. *On Derived Sets.* 18 (1943) 53-63.
———. *The Sources of Euclid.* 11 (1937) 374-381.

S

Saaty, Thomas L. *Remarks on the Four Color Problem; The Kempe Catastrophe.* 40 (1967) 31-36.
Sakellariou, Nilos. *On a Group of Contact Transformations.* 22 (1948) 13-18.
———. *What We Mean by Mathematics.* 25 (1951) 51-52.
Salkind, Charles T. *Another Interesting Property of Two Consecutive Numbers.* 38 (1965) 231.
———. *Factorization of [the Polynomial] $a^{2n} + a^n + 1$.* 38 (1965) 163; *Sequel* 42 (1969) 41-42.
Sallee, G.T. *see* Chakerian, G.D.
Salyers, Gary D. *The Number System of the Mayas.* 28 (1954) 44-48.
Salzer, Herbert E. *Polynomials for Best Approximation Over Semi-Infinite and Infinite Intervals.* 23 (1949) 59-69.
Samuels, E.S. *The Effect of a Certain Weekly [Interest] Schedule at the Rate of One-Half of One Per Cent Per Week.* 7:1 (1932) 20-21.
Samuels, S.M. *The Classical Ruin Problem with Equal Initial Fortunes.* 48 (1975) 286-288.
Sanders, S.T. *A Mathematical Recreation [: Bridge].* 5:7 (1931) 27-30.
———. *A Probability Problem.* 7:5 (1933) 15-16.
———. *Euclid and Infinity.* 4:7 (1930) 15-22.
———. *Finesse at Bridge.* 6:4 (1932) 17-19.
———. *Functional Equations Defining the Complementary Operations.* 12 (1937) 115-117.
———. *[History of] Precocity in Mathematics.* 7:3 (1932) 21-22.
———. *Inequality Principles.* 4:4 (1929) 7-8.
———. *Linear Equations in a Certain Chemical Analysis.* 7:7 (1933) 23-25.
———. *Making Geometry Worth While.* 4:1 (1929) 12-20.
———. *Note on Factorization in Connection with a Certain Determinant.* 3:8 (1929) 15-18.
———. *On the First Two Chapters of Russell's Introduction to Mathematical Philosophy.* 6:1 (1931) 18-21.
———. *Professor Seidlin's Questionnaire on Mathematics Teaching.* 11 (1936) 2.
———. *Relative Primality.* 5:3 (1930) 18-24.
———. *Some Aspects of Primes and Integers.* 5:4 (1930) 19-23.
———. *Some Deductions from the Cosine Law.* 3:5 (1929) 22-23.
———. *Some Simple Aspects of Primes.* 5:6 (1931) 12-16.
———. *Survey of Present Status of Secondary Mathematics in the United States.* 9 (1934) 3-9, 35-42.
———. *The Philosopher and Mathematics.* 8 (1934) 121-124.
Sands, Bill. *The Gunport Problem.* 44 (1971) 193-196; *Comment* 45 (1972) 280.
Santos. Bernardo Recamán. *Twelve and its Totitives.* 49 (1976) 239-240; *Comment* 50 (1977) 107.
Sarafyan, Diran. *Nested Series, Computation of Square Roots and Solution of Third Degree Equations.* 27 (1953) 19-36.
Sasayama, Hiroyoshi. *On the Intrinsic Derivative of Generalized Order.* 30 (1957) 135-143.
Sastry, K.R.S. *Constellation Morley.* 47 (1974) 15-22.
Savage, R.G. *see* Dotson, W.G., Jr.
Sawtelle, Peter G. *The Ubiquitous e.* 49 (1976) 244-245.
Sawyer, W.W. *The Early Training of Mathematical Research Workers.* 25 (1952) 226-228.
Saxena, Subhash C. *A Simple Construction of a Non-Desarguesian Plane.* 46 (1973) 225.
Schaaf, William L. *[Mathematics:] The Highest Rung.* 16 (1942) 392-397.
———. *Need for Studies in Mathematical Education.* 18 (1943) 27-31.
———. *Perversion of Purpose in Elementary Mathematical Education.* 19 (1945) 406-413.
———. *Post-War Planning for Mathematical Education.* 19 (1944) 147-149.
———. *The Education of Mathematics Teachers.* 13 (1938) 83-89.
Schach, Arthur. *Two Forms of Mathematical Induction.* 32 (1958) 83-85.
Schaefer, Paul. *A Note on the Limit of $f(x)/f'(x)$.* 34 (1961) 268.
———. *Graphs of Semi-Complex Functions.* 37 (1964) 273.
Schaer, Jonathan. *An "Obvious" But Useful Theorem About Closed Curves.* 45 (1972) 154-155.
———. *On the Packing of Ten Equal Circles in a Square.* 44 (1971) 139-140.
Schattschneider, Doris J. *A Multiplicative Metric.* 49 (1976) 203-205; *Comment* 50 (1977) 55-56.
Schaumberger, Norman. *A Simple Proof of the Formula for Sin(A+B).* 35 (1962) 229.
———. *see also* Just, Erwin.

Schawe, D.P. *A Cauchy Condition for Functions.* 44 (1971) 159-161.
Schenkman, Eugene. *A Group Theoretic Presentation of the Alternating Group on Five Symbols, A_5.* 48 (1975) 170-171.
Schepler, Herman C. *The Chronology of Pi.* 23 (1950) 165-170, 216-228, 279-283.
Scherberg, M.G. *A Fraction Rule in Logarithms.* 11 (1937) 195.
Schild, Albert. *see* Mandelbaum, Joseph.
Schillo, Paul. *A Mathematical Munchausen [I. Neustadt...Satire].* 30 (1956) 55-61; *Comment* 31 (1958) 159-161; 32 (1959) 271-274.
Schlesinger, Ernest C. *see* Klamkin, Murray S.
Schmidt, Sophie. *Standard Tests.* 6:1 (1931) 6-9.
Schneider, D.G. *see* Jordan, J.H.
Schneider, Joel E. *A Generalization of the von Koch Curve.* 38 (1965) 144-147.
Schneider, W.J. *A Problem in 2-Dimensional Heat Flow.* 40 (1967) 144-145.
———. *see also* Cargo, Gerald T.
Schoenberg, I.J. *see* De Boor, Carl.
Schoenfeld, Lowell. *On the Differentiability of Indeterminate Quotients.* 41 (1968) 152-155.
———. *Some Remarks on the Logarithmic Function in the Complex Plane.* 32 (1959) 189-202.
Scholomiti, N.C. and Hill, R.G. *Some Expansions in Number Theory.* 35 (1962) 79-85.
Schuster, Eugene F. *An Integer Programming Handicap System in a "Write Ring Tossing Game."* 48 (1975) 134-142.
———. *The Probability Integral Transformation: A Simple Proof.* 49 (1976) 242-243.
Schuster, Seymour. *Projective Methods in Euclidean Geometry.* 36 (1963) 81-83.
Schuurman, W. and Lodder, J. *The Beauty, The Beast, and the Pond [: a Puzzle].* 47 (1974) 93-95.
Schwartz, Benjamin L. *A Supplementary Note on Solutions of Cubic Equations on a Slide Rule.* 32 (1958) 41-43.
———. *A Two-Move Game.* 47 (1974) 190-197.
———. *An Analytic Method for the "Difficult Crossing" Puzzles.* 34 (1961) 187-193.
———. *An Improved Solution to "Instant Insanity."* 43 (1970) 20-23.
———. *Defining the Interchange of a Loop.* 43 (1970) 141-143.
———. *Mathematical Theory of Think-A-Dot.* 40 (1967) 187-193; *Sequel* 46 (1973) 128-136.
———. *On Polyhedral Faces.* 48 (1975) 289-290.
———. *Self-Generating Integers.* 46 (1973) 158-160.
———. *Separating Points in a Rectangle.* 46 (1973) 62-70.
———. *Some Extensions of NIM.* 44 (1971) 252-257.
——— and Deakin, Michael A.B. *Walking in the Rain, Reconsidered.* 46 (1973) 272-276.
———. *What Color Was the Bear?* 34 (1960) 1-4.
Scott, P.R. *Area-Diameter Relations for Two-Dimensional Lattices.* 47 (1974) 218-221.
———. *Convex Bodies and Lattice Points.* 48 (1975) 110-112.
———. *Lattice Points in Convex Sets.* 49 (1976) 145-146.
———. *On Minkowski's Theorem.* 47 (1974) 277.
Scott, Robert H. *The Third Order Magic Square.* 36 (1963) 263.
Scott, W.T. and Wall, H.S. *Continued Fractions.* 13 (1939) 305-322.
Seidlin, Joseph. *A Preliminary [Educational] Report on Homogeneous Grouping in Freshman Mathematics.* 7:7 (1933) 1-4.
———. *A Report of the Mathematics Committee of the California Junior College Association.* 11 (1937) 385-389.
———. *A Report on Present Tendencies in the Development of Mathematical Teaching in Japan, by M. Kuniyeda.* 11 (1937) 231-240.
———. *Analysis and Interpretation of Survey of Present Status of Secondary Mathematics in the United States.* 9 (1935) 143-146.
———. *Between the [Educational] Devil and the Deep Blue Sea.* 30 (1957) 277-281.
———. *High [Educational] Standards: Sacred and Profane.* 23 (1950) 189-192.
———. *Ideal Preparation in Mathematics for College Entrance.* 26 (1952) 89-94.
———. *In Defense of the "Indirect" Proof.* 6:7 (1932) 4-17.
———. *More About Better Mathematics [Education].* 14 (1939) 96-99.
———. *The Place of Mathematics and its Teaching in the Schools of This Country.* 10 (1936) 304-307; 11 (1936) 24-25, 147-151.
Seiner, Jerome A. *Curvature by Normal Line Convergence.* 39 (1966) 147-148.
Selby, Sam. *A Note on Cologarithms.* 28 (1955) 196.
Selfridge, R.G. *see* Lamont, John S.
Sell, George R. *Completion of a Metric Space.* 44 (1971) 182-184.
Sell, William. *A Curious Function from Elementary Calculus.* 7:5 (1933) 13-15; *Sequel* 7:7 (1933) 29-30.
Sentyrz, Frank, Jr. *see* Rebmann, Michael T.
Sesskin, Sam. *A "Converse" to Fermat's Last Theorem?* 35 (1962) 215-217.
Sewell, W.E. *Logarithmic Properties of*

[*an Integral of*] *a Power of x*. 15 (1940) 55-60.
———. *The Derivative of a Polynomial on Various Arcs of the Complex Domain*. 12 (1938) 167-170.
Shafer, Robert E. *A Proof of Euler's Limit From a Well Known Physical Principle*. 32 (1959) 211-212.
Shah, A.P. and Vaidya, A.M. *On Kaprekar's Periodic Oscillating Series*. 41 (1968) 253-255.
Shahdan, Peter. *Permutation Ordering and Identification*. 34 (1961) 353-358.
Shallit, Jeffrey. *An Interesting Continued Fraction*. 48 (1975) 207-211.
Shannon, A.G. *Fibonacci Analogs of the Classical Polynomials*. 48 (1975) 123-130.
Shantaram, R. *On An Interesting Metric Space*. 43 (1970) 95-97.
Shapiro, Edwin. *see* Gallin, Daniel.
Shapiro, Harold N. *Powers of* [*the Polynomial*] $x^2 + 1$. 50 (1977) 208-209.
Shapiro, Isidor F. *Adequate Induction by Sampling*. 16 (1942) 398-399.
———. *Harmonic Series in Interest Problems*. 13 (1939) 230.
———. *Note on the Harmonic Series*. 13 (1939) 222.
———. *Oblique Projection, Simplified*. 17 (1943) 177-179.
Shapiro, Louis W. *Finite Groups Acting on Sets with Applications*. 46 (1973) 136-147.
Sharp, Henry, Jr. *Homeomorphisms on Finite Sets*. 40 (1967) 152-156.
Shaw, Allen A. *A Pre-Euclidean Fragment of the Elements*. 13 (1938) 76-82.
———. *An Overlooked Numeral System of Antiquity*. 13 (1939) 368-372.
———. *Applications of Complex Numbers to Geometry of Circles*. 14 (1939) 26-36.
———. *Note on Roman Numerals*. 13 (1938) 127-128.
———. *On Measures and Weights by Epiphanius*. 11 (1936) 3-7.
———. *The First Printed Armenian Treatise on Arithmetic and Algebra*. 11 (1936) 117-125.
———. *The First Printed Armenian Treatise on Geometry and Trigonometry*. 10 (1936) 287-289.
Shaw, Ida Bell. *A History of the Development of Mathematics in the Field of Economics*. 8 (1933) 31-37; 8 (1934) 128-131.
Shaw, James Byrnie. *Imaginary Orders* [*Complex, Quaternionic, Caley*]. 12 (1937) 63-76.
Sheingorn, M. *see* Bumcrot, R.
Shell, Lorraine. *Algebra and the Seven Objectives*. 5:1 (1930) 11-16.
———. *The Transfer Value* [*in Education*] *of Mathematics*. 5:2 (1930) 10-13.
Shene, C.K. *The Triangle Area Formula Implies the Parallel Postulate*. 45 (1972) 269-272.
Sheng, Hung Tao. *A Method of Trisection of an Angle and X-Section of an Angle*. 42 (1969) 73-80.
Sheng, T.K. and Daykin, D.E. *On Approximating Polygons by Rational Polygons*. 39 (1966) 299-300.
Shenton, L.R. *see* Bowman, K.O.
Shephard, Geoffrey C. *see* Grünbaum, Branko.
Shepherd, W.L. *Motivating the Study of Determinants*. 28 (1955) 280-281.
Sherman, Gary J. *When do the Periodic Elements of a Group Form a Subgroup?* 47 (1974) 279-281.
Shipman, David C. *A New Proof of a Combinatorial Identity*. 43 (1970) 162-163.
Shirley, Ernest. *The Needs of College Freshmen in Mathematics*. 4:3 (1929) 11-14.
Shisha, O. *Geometrical Interpretations of the Inequalities Between the Arithmetic, Geometric and Harmonic Means*. 39 (1966) 268-269.
Shohat, J.A. *Orthogonal Polynomials and Polynomials in General*. 21 (1947) 3-21.
Sholander, Marlow. *A Geometric Perpetual Calendar*. 25 (1952) 275-277.
———. *Medians and Incenters*. 36 (1963) 129-130.
———. *On Defining the Sine and Cosine*. 43 (1970) 72-75.
———. *Proof of a Conjecture of R.C. and E.F. Buck*. 24 (1950) 7-10.
Shoptaugh, John R. *Suggestions for Improving the Teaching of Solid Geometry*. 4:2 (1929) 3-12.
Short, W.T. *Hyperbolic Solution of the Cubic Equation*. 12 (1937) 111-114.
Shover, Grace. *On Roots of Unity*. 15 (1941) 232-233.
Sidenblad, Paul. *An Extension of Brocard Geometry*. 47 (1974) 159-161.
Siller, Harry. *On the Separability of the Riccati Differential Equation*. 43 (1970) 197-202.
Simmons, G.J. *A Combinatorial Problem Associated with a Family of Combination Locks*. 37 (1964) 127-132.
———. *Some Results Pertaining to Fermat's Conjecture*. 39 (1966) 18-21.
Simmons, H.A. *Remarks on Temple's Trigonometric and Hyperbolic Analogies*. 14 (1940) 455-458.
Simone, Joseph N. *On Number Theoretic Functions Which Satisfy* [*the Functional Equation*] $f(x+y) = f(f(x) + f(y))$. 46 (1973) 213-215.
Simons, H.A. *Classroom Discussion of a Question on Infinite Series*. 22 (1948) 53.

Sims, B.T. [*Topologies*] *Between T_2 and T_3*. 40 (1967) 25-26.
Singer, Arnold. *On a Substitution Made in Solving Reciprocal Equations*. 38 (1965) 212.
Singh, Sahib. *Non-Euclidean Domains: An Example*. 49 (1976) 243.
Singmaster, David. *A Maximal Generalization of Fermat's Theorem*. 39 (1966) 103-107.
———. *Covering Deleted Chessboards with Dominoes*. 48 (1975) 59-66.
———. *On Round Pegs in Square Holes and Square Pegs in Round Holes*. 37 (1964) 335-337.
Sinha, I. and Srivastava, J.B. *Ideals in Commutative Domains*. 44 (1971) 124-127.
Sinkhorn, Richard. *Concerning the Jordan Normal Form* [*of a Matrix*]. 41 (1968) 91-93.
Sisam, C.H. *Resultants and Symmetric Functions*. 9 (1934) 46-52.
———. *Some Comments on the Secondary Mathematics Situation*. 10 (1935) 25-27.
Sit, William Y. and Siu, Man-Keung. *On the Subsemigroups of* [*the Positive Integers*] *N*. 48 (1975) 225-227.
Siu, Man-Keung. *When* [*in what Rings*] *is -1 a Power of 2?* 48 (1975) 284-286; *Comment* 49 (1976) 156-157.
———. *see also* Sit, William Y.
Sjoblom, L. *see* Pennisi, Louis L.
Sleight, E.R. *Arithmetic According to Cocker*. 17 (1943) 248-257.
———. [*Development of*] *Mathematics in Scotland Before the Eighteenth Century*. 18 (1944) 305-314.
———. *Development of Mathematics in Scotland, 1669-1746*. 19 (1945) 173-185.
———. *Early American Arithmetics*. 10 (1935) 9-12.
———. *Early English Arithmetics*. 16 (1942) 198-215, 243-251.
———. *Entrance Requirements and Their Effect Upon Mathematics in the High School*. 10 (1936) 241-246.
———. *Interesting the Superior Student*. 10 (1935) 58-62.
———. *John Napier and His Logarithms*. 18 (1944) 145-152.
———. *Mathematics Applied*. 9 (1935) 219-223.
———. *Pestalozzi and the American Arithmetic*. 11 (1937) 310-317.
———. *Student Tutorial System in Freshman Mathematics in Albion College*. 10 (1935) 101-103.
———. *The Origin and Development of Tables of Weight, Length and Time*. 19 (1945) 236-243.
———. *The Scholar's Arithmetic*. 10 (1936) 193-199.
Sleight, Norma. *Pertinent Historical Material for a Slide Rule Course*. 20 (1945) 11-20.
Sloss, James M. *A Four Circle Inequality*. 37 (1964) 327-330.
Sloyan, Sister M. Stephanie. *On the Family of Curves $z = (t - t^n)/2$*. 35 (1962) 211-213.
———. *The Intersection Points of Perimeter Bisectors*. 36 (1963) 312-313.
Small, Charles. *Integer Polynomials with Prescribed Integer Values*. 46 (1973) 92-94.
———. *Powers mod n*. 50 (1977) 84-86.
———. *Waring's Problem*. 50 (1977) 12-16.
Small, William A. *A Note on Equations and Inequalities*. 34 (1961) 283-284.
Smalley, Ian. *Simple Regular Sphere Packings in Three Dimensions*. 36 (1963) 295-299.
Smith, C.D. *A Freshman Placement Program*. 4:5 (1930) 9-10.
———. *A Mathematics Club*. 5:3 (1930) 5-6.
———. *A Statistical Problem in Advertising*. 23 (1949) 23-24.
———. *Developments in Secondary Mathematics*. 5:4 (1930) 4-8.
———. [*Obituary:*] *Henry Lewis Rietz, 1875-1943*. 18 (1944) 182-184.
———. *On Boundary Values for Area of a Triangle*. 4:8 (1930) 7-9.
———. *On Recent Developments in Geometry* [*i.e., Topology*]. 5:7 (1931) 23-27.
———. *On the Algebra of Mixtures*. 9 (1935) 138-141.
———. *On the Mathematics of Simple Correlation*. 32 (1958) 57-69.
———. *On the Mathematics of Stock Quotations*. 8 (1934) 179-184.
———. *On the Problem of Integration by Parts*. 3:3 (1928) 7-8.
———. *Science in Multiplying Fractions*. 3:8 (1929) 8-10.
———. *Some Further Notes on the Theory of Correlation*. 32 (1959) 269-270.
———. *Some Probability Estimates From Contingency Tables*. 25 (1951) 59-62.
———. *Tchebycheff Inequalities as a Basis for Statistical Tests*. 28 (1955) 185-195.
———. *Teaching the Conic*. 17 (1942) 79-80.
———. *Three-Circle Problems in Modern Geometry*. 14 (1940) 299-307.
Smith, David A. *Human Population Growth: Stability or Explosion?* 50 (1977) 786-797.
———. *Inexpensive Computer Graphing of Surfaces*. 50 (1977) 143-147.
Smith, H.L. *A Brief Treatment of Analytic Trigonometry*. 2:1 (1927) 5-7.
———. *A Discussion* [*about Trigonometry*]. 4:7 (1930) 14-15.

———. *A General Theory of Limits.* 12 (1938) 371-379.
———. *A Note on a Distance Formula of Plane Analytics.* 3:4 (1928) 19-21.
———. *A Note on Vectors.* 6:2 (1931) 18-23.
———. *A Problem in Analytic Geometry.* 3:2 (1928) 12-14.
———. *A Theorem on Proportion With Some Applications.* 4:1 (1929) 20-22.
———. *An Analytic Treatment of Spherical Trigonometry.* 7:6 (1933) 17-23.
———. *An Application of the Method of Successive Substitutions to an Annuity Problem.* 5:6 (1931) 16-20.
———. *An Application of the Method of Undetermined Coefficients to Symmetric Functions.* 7:1 (1932) 17-20.
———. *Note on a Class of Curious Loci.* 3:5 (1929) 23-24.
———. *Note on Parametric Equations of Certain Degenerate Conics.* 3:6 (1929) 21-22.
———. *Note on Parametric Equations of the Straight Line.* 3:3 (1928) 8-10.
———. *Note on the Integration of a Rational Function of Trigonometric Functions and Quadratic Radicals.* 6:3 (1931) 15-17.
———. *Note on the Quadratic Formula.* 3:7 (1929) 19-20.
———. *Note on the Volume of a Tetrahedron.* 6:4 (1932) 23-24.
———. *On Certain Useful Functions [in Calculus].* 4:6 (1939) 20-22.
———. *On Partial Fractions.* 2:6 (1928) 18-19.
———. *On Root Approximation.* 17 (1943) 312-314.
———. *On Simultaneous Algebraic Equations.* 7:3 (1932) 10-14.
———. *On Simultaneous Quadratics.* 3:1 (1928) 16-18.
———. *On the Absolute Maximum of a Function on a Region.* 3:8 (1929) 13-15.
———. *On the Definition of the Sum of Two Vectors.* 6:7 (1932) 30-31.
———. *On the Differentiation of Scalar Functions of Vectors.* 4:8 (1930) 17-18.
———. *On the Inverse Circular Functions.* 4:3 (1929) 14-19.
———. *On the Notions of Velocity and of Acceleration.* 4:4 (1929) 16-19.
———. *Partial Fractions.* 5:2 (1930) 18-24.
———. *The Circular and Hyperbolic Functions.* 5:4 (1930) 14-19.
———. *The Covariants of a Quadric Surface.* 10 (1936) 297-301.
———. *The Method of Successive Substitutions.* 5:5 (1931) 20-24.
———. *The Notion of Area of Surface.* 5:7 (1931) 36-43.
———. *The Straight Line in Plane Analytics.* 2:2 (1927) 12-14.
———. *The Trigonometry Based on a Central Conic.* 5:7 (1931) 30-33; 9 (1934) 69-72.
Smith, Harvey A. *see* Kupperman, Robert H.
Smith, J. Denmead. *The General Cayley-Hamilton Theorem via the Easiest Real Case.* 48 (1975) 232-233.
Smith, James F. and Quinn, Michael J. *Hamiltonian Circuits: A Hierarchy of Examples.* 50 (1977) 35-36.
Smith, P.K. *Normal Form of the Straight Line.* 2:3 (1928) 10-11.
Smithson, R.E. *A Note on Finite Boolean Rings.* 37 (1964) 325-327.
Smolarski, Dennis C. *see* Klosinski, Leonard F.
Sobczyk, Andrew. *More Progress to Madness via "Eight Blocks."* 47 (1974) 115-124.
———. *Symmetrical Types of Convex Regions.* 29 (1956) 175-192.
———. *see also* Kenelly, John W.
Soble, A.B. *A Better Elementary Method for Computing Logs and Antilogs.* 13 (1939) 231-232.
———. *A Non-Rotational Operator of Third Order Periodicity.* 14 (1940) 443-444.
———. *A Note on Observed Geometrie Series.* 14 (1940) 372.
———. *Abstract Structure of Inequalities.* 31 (1958) 179-184.
Sokolnikoff, I.S. *Opportunities for Mathematically Trained College Graduates.* 21 (1947) 102-105.
Sollfrey, William. *Note on Sums of Squares of Consecutive Odd Integers.* 41 (1968) 255-258.
Sophie Wright High School. *Goals in the Solution of Geometric Problems.* 8 (1934) 73-76.
Soudack, A.C. *Some Nonlinear Differential Equations Satisfied by the Jacobian Elliptic Functions.* 37 (1964) 138-147.
Soundararajan, T. *On the Automorphisms of the Complex Number Field.* 40 (1967) 213.
South, Jerry C., Jr. *Note on the Matrix Functions sin πA and cos πA.* 39 (1966) 287-288.
Speck, G.P. *Dimension Under Analytic Maps.* 42 (1969) 91-93.
———. *Elementary Transcendental Functions.* 42 (1969) 200-202.
Spezia, Sister Clotilda. *Harmonic Points and Loci Connected with the Frégier Theorem.* 28 (1954) 13-19.
Spickerman, W.R. *An Extension of Morley's Theorem.* 44 (1971) 191-192.
Spiegel, Eugene. *Calculating Commutators in Groups.* 49 (1976) 192-194.
Spiegel, Murray H. *Remarks on the Inte-*

gration of Products of Functions by R. W. Hakala, V. 27 (1953) 2. 28 (1954) 115-119.
Spiegel, Murray R. *Advanced Mathematics From an Elementary Standpoint.* 23 (1950) 244-246.
———. *Mean Value Theorems and Taylor Series.* 29 (1956) 263-266.
———. *On a Certain Problem in Mechanics.* 30 (1956) 94; *Comments* 30 (1957) 215-217, 268; 31 (1958) 158-159.
Spira, Robert. *Abstract Möbius Inversion.* 45 (1972) 220-223.
Spitznagel, Edward L., Jr. *A New Look at the Fifteen Puzzle.* 40 (1967) 171-174.
———. *Properties of a Game Based on Euclid's Algorithm.* 46 (1973) 87-92.
Spoar, G. *The Connection of Block Designs with Finite Bolyai-Lobachevsky Planes.* 46 (1973) 101-102.
Springer, C.E. *Evaluation of a Limit by a Sequence of Triangles.* 18 (1944) 185-187.
Squire, William. *A Note on the [Frobenius] Indical Equation.* 34 (1961) 226-229.
———. *A Simple Matrix Inversion Procedure?* 37 (1964) 214.
———. *Relaxation Methods [in Differential Equations].* 33 (1960) 177-183.
Srivastava, J.B. *see* Sinha, I.
Staib, John H. *A Sequence Approach to Uniform Continuity.* 40 (1967) 270-273.
———. *An Alternative to the Gram-Schmidt Process.* 42 (1969) 203-205.
———. *On Curves with Corners.* 41 (1968) 134-136.
——— and Demos, Miltiades S. *On the Limit Points of the Sequence {sin n}.* 40 (1967) 210-213; *Comment* 42 (1969) 94.
———. *Sequences vs. Neighborhoods.* 44 (1971) 145-146.
———. *The Integration of Inverse Functions.* 39 (1966) 223-224.
———. *Trigonometric Power Series.* 49 (1976) 147-148.
Stanley, T.E. *A Note on the Sequence of Fibonacci Numbers.* 44 (1971) 19-22.
Stanton, R.G. *A Representation Problem.* 43 (1970) 130-137.
Stark, E.L. *The Series* $\Sigma_{k=1}^{\infty} k^{-s}$, $s = 2,3,4,\ldots$, *Once More.* 47 (1974) 197-202.
Stark, J.M. *A Complete Set of Coefficient Functions for the Second Degree Equation in Two Variables.* 37 (1964) 253-261.
———. *Analytic Proof of the Feuerbach Theorem.* 36 (1963) 122-125.
Stark, Marion E. *Methods of Mathematical Proof for Undergraduates.* 16 (1942) 350-351.
———. *"We [Teachers] Look Before and After."* 18 (1943) 116-119.
Starke, Emory P. *Binomial Congruences.* 13 (1939) 163-170
———. *Foot-Notes to the Chapter on "Theory of Equations."* 14 (1940) 408-411.
———. *The Theory of Numbers for Undergraduates.* 10 (1935) 53-57.
Starr, Norton. *The Existence of the Derivative of the Inverse Function.* 44 (1971) 189-190.
Stearn, J.L. *An Idempotent Matrix.* 35 (1962) 53-54.
Steele, M. Philip, Sr. and McBrien, V.O. *Basic Configurations of the Plane Under Certain Groups.* 23 (1949) 5-14.
Steen, F.H. *Simplification by Rotation.* 15 (1941) 369-374.
Steen, Lynn A. *Solution of the Four Color Problem.* 49 (1976) 219-222; *Comment* 50 (1977) 173.
Stein, Alan H. *On Almost Relatively Prime Integers.* 48 (1975) 169-170.
Stein, F. Max. *A Lesson in Graphing.* 36 (1963) 249-252.
———. *How Much Redundancy?* 37 (1964) 344-345.
———. *The Tritrix, A Triangular Array of Scalars.* 36 (1963) 143-146.
———. *see also* Hapke, Larry.
———. *see also* Williams, Michael Z.
———. *see also* Haaheim, D. Robert.
———. *see also* Kieffer, John C.
———. *see also* Carter, Paula Winn.
Stein, M.L. and Stein, P.R. *New Experimental Results on the Goldbach Conjecture.* 38 (1965) 72-80.
Stein, P.R. *see* Stein, M.L.
Stein, Robert G. *A Combinatorial Proof that [the Sum]* $\Sigma k^3 = (\Sigma k)^2$. 44 (1971) 161-162.
Stein, Sherman K. *"Mean Distance" in Kepler's Third Law.* 50 (1977) 160-162.
Steinberg, Donald A. *Combinatorial Derivations of Two Identities.* 31 (1958) 207-209.
Steinberg, R. *An Example in Functional Equations.* 29 (1956) 129-130.
Steiner, Gilbert and Bronson, Richard. *A Note on Conjugate Spaces.* 46 (1973) 158.
Stelson, H.E. *A Comparison of Methods for Finding the Interest Rate in Installment Payment Plans.* 11 (1937) 172-176.
———. *A Comparison of Simple and Compound Interest.* 19 (1945) 336-340.
———. *Computation of the Simple Interest Rate in Installment Purchases.* 9 (1935) 135-138.
———. *Loans with a Partial Payment.* 37 (1964) 178-183.
Stern, Frederick. *Conditional Expectation of the Duration in the Classical Ruin Problem.* 48 (1975) 200-203.
Stern, Samuel T. *On the Complete Independence of the Axioms of a Seminatural System.* 39 (1966) 232-236; *Sequels* 41 (1968) 88-89; 43 (1970) 93-94.

———. *Seminatural Systems as Nonempty, Well-Ordered Sets Without Last Element.* 43 (1970) 93-94.
Stewart, R.H. *Some High School Factors in Freshman Mathematics Grades.* 6:5 (1932) 10-12.
Stockmeyer, Paul K. *see* Manvel, Bennet.
Stoddard, John F. *The American Arithmetic.* 30 (1957) 220-221.
Stojakovic, Mirko. *On a Theorem of G.P. Barker on Triangular Matrices.* 44 (1971) 133-134.
Stolarsky, Kenneth B. *Generalizations of the Logarithmic Mean.* 48 (1975) 87-92.
Stone, D.E. *Round Table on Fermat's Last Theorem [Part II].* 28 (1955) 295-296; *Comment* 29 (1956) 123-124.
Stone, John C. *Finding a Pupil's Difficulties in Algebra.* 4:5 (1930) 5-9.
Stone, Lawrence D. *Search Theory: A Mathematical Theory for Finding Lost Objects.* 50 (1977) 248-256.
Stone, Marshall H. *The Generalized Weierstrass Approximation Theorem.* 21 (1948) 167-184, 237-254.
Straffin, Philip D., Jr. *The Power of Voting Blocs: An Example.* 50 (1977) 22-24.
Strait, Peggy Tang. *A Binomial Identity Derived from a Mathematical Model of the World Series.* 48 (1975) 227-228.
Straiton, A.W. *An Application of Fejér Summability.* 18 (1943) 106-107.
Struble, Raimond A. *On the Differential Equation $f'(x) = af(g(x))$.* 41 (1968) 260-263.
Studley, Duane. *Abstract Isomorphism.* 22 (1949) 191-193.
———. *Algebra of Neural Nets.* 22 (1949) 125-128.
———. *America's Greatest: [Josiah Willard Gibbs].* 23 (1949) 75-78.
Sturm, Isabel C. *Liquor in Education.* 26 (1952) 44-45.
Subba Rao, H.S. *A Note on Space Curves.* 33 (1960) 162-164.
Subramanian, Pudukkottai K. *On Bases and Cycles.* 41 (1968) 117-123.
Subramanyam, S.S. *On Certain Chains.* 45 (1972) 65-72.
Sugai, Iwao. *On Unequal Partitions of Integers.* 33 (1960) 129-138; *Sequel* 34 (1960) 101-103.
Sullivan, Sister Helen. *A Realistic View of Differential Calculus.* 24 (1951) 162-165.
———. *A Seminar Plan in Mathematics.* 17 (1943) 170-173.
———. *Mathematics in the Open Forum.* 18 (1944) 276-279.
Sutcliffe, Alan. *A Note on the Sum of Squares.* 36 (1963) 221-223.
———. *Integers That are Multiplied When Their Digits are Reversed.* 39 (1966) 282-287; *Sequels* 41 (1968) 84-86; 43 (1970) 89-92.
———. *On the Accuracy of Z [-shaped Nomograph] Charts.* 36 (1963) 106-108.
———. *Waiting For a Bus.* 38 (1965) 102-103.
Suter, Glen H. *An Elementary Example of a Transcendental p-adic Number.* 49 (1976) 42.
Sweet, Frank H. *Two Groups Associated with Ruled Surfaces.* 39 (1966) 205-208.
Szebehely, Victor G. *On the Problem of Three Bodies in a Plane.* 26 (1952) 59-66.
Szwajkos, Mary Ann. *see* Habermehl, Helen.

T

Talacko, Joseph. *Some Operational Methods in the Calculus of Finite Differences.* 31 (1957) 15-25.
Talbot, Walter R. *An Integral Property of Cubics and Quadratics.* 37 (1964) 325.
Tan, Kaidy. *Different Proofs of Desargues' Theorem.* 40 (1967) 14-25.
———. *Finding the Cube Root of Binomial Quadratic Surds.* 39 (1966) 212-214.
———. *Note Concerning Two Construction Problems in Geometry.* 38 (1965) 222-228.
———. *Some Proofs of a Theorem on Quadrilateral.* 35 (1962) 289-294.
———. *Various Proofs of Newton's Theorem.* 39 (1966) 45-58.
———. *Various Proofs of Pascal's Theorem.* 38 (1965) 22-30.
Tan, Peter. *Functional Equations in Mathematical Statistics.* 45 (1972) 179-183.
——— and Drossos, Constantin. *Invariance Properties of Maximum Likelihood Estimators.* 48 (1975) 37-41.
Tanner, Leslie R. *see* Wagstaff, Ronald.
Taussky, Olga and Todd, John. *Systems of Equations, Matrices and Determinants.* 26 (1952) 9-20, 71-88.
Taylor, Angus E. *New Proofs of Some Theorems of Hardy by Banach Space Methods.* 23 (1950) 115-124.
Taylor, Gerald D. *An Approximation for any Positive Integral Root.* 35 (1962) 107-108; *Sequel* 37 (1964) 187-192.
Taylor, Herbert. *Odd Path Sums in an Edge-Labeled Tree.* 50 (1977) 258-259.
Tchakaloff, L. *On a Representation of the Newtonian Difference Quotients and Their Applications--An Abstract.* 11 (1937) 183-184.
Teller, Paul and Fine, Arthur. *A Characterization of Conditional Probability.* 48 (1975) 267-270.
Temperley, Nicholas. *see* Jerrard, R.P.
Temple, V.B. *Some Functions Analogous to Trigonometric and Hyperbolic Functions.* 13 (1939) 263-271.

Tenney, Richard L. and Foster, Caxton C. *Non-Transitive Dominance.* 49 (1976) 115-120.
Tepper, Myron D. *A Factorial Conjecture.* 38 (1965) 303-304; *Sequel* 38 (1965) 304-305.
———. *Sums of Powers.* 38 (1965) 17-19.
———. *The [Permutation] Way of Redemption.* 37 (1964) 269-271.
Thanigasalam, K. *Congruence Properties of Certain Restricted Partitions.* 47 (1974) 154-156.
Thébault, Victor T. *A French Mathematician of the Sixteenth Century, Jacques Peletier (1517-1582).* 21 (1948) 147-150.
———. *French Geometers of the 19th Century.* 32 (1958) 79-82.
———. *Quadrangle bordé de triangles isoscelès semblables.* 18 (1943) 7-13.
———. *Spheres Associated With a Tetrahedron.* 26 (1952) 33-34.
———. *Theoremes de geometrie elementaire.* 14 (1940) 313-316.
Theobald, John A. *An Approach to a Class in Freshman Mathematics.* 8 (1933) 51-54.
Thielman, H.P. *A Generalization of Trigonometry.* 11 (1937) 349-351.
Thomas, John. *A Dissection Problem.* 41 (1968) 187-190.
Thomas, Joseph Miller. *Sturm's Theorem for Multiple Roots.* 15 (1941) 391-394.
———. *The Linear Diophantine Equation in Two Unknowns.* 24 (1950) 59-64.
Thomas, Paul D. *Approximations to Incommensurable Numbers by Ratios of Positive Integers.* 36 (1963) 281-289.
———. *Derivation of the Product Formulas of Trigonometry from a Figure.* 20 (1945) 93-94.
———. *Rigidity Restrictions on Analytic Loci.* 22 (1948) 109-110.
Thomas, T.Y. *The Fundamental Hydrodynamical Equations and Shock Conditions for Gases.* 22 (1949) 169-189.
———. *What Mathematics Means To Me.* 24 (1951) 275-276.
Thomas À. Kempis, Sister M. *An Appreciation of Sophie Germain.* 14 (1939) 81-90.
Thompson, Gerald L. *Hamiltonian Tours and Paths in Rectangular Lattice Graphs.* 50 (1977) 147-150.
Thompson, R.L. *Open Mappings and the Fundamental Theorem of Algebra.* 43 (1970) 39-40; *Comment* 45 (1972) 113.
Thompson, Ronald B. *Parametric Solutions of Certain Diophantine Equations.* 8 (1933) 58-60.
Thompson, Russell G. *see* Brock, William A.
Thomson, J.F. *A Problem in the Computation of State and Federal Taxes.* 12 (1938) 380-383.
———. *Evaluation of Infinite Integrals by Heaviside Operators.* 15 (1941) 173-176.
Thorne, C.J. *see* Deverall, L.I.
Thoro, Dmitri. *An Application of Schwarz's Inequality to Curve Fitting.* 35 (1962) 12.
Thurston, Hugh. *Tangents: An Elementary Survey.* 42 (1969) 1-11.
Tiefenback, Michael. *Topological Genealogy.* 50 (1977) 158-160.
Tierney, John A. and Tyler, John. *Multiple Numbers.* 31 (1957) 27-29.
[Time Magazine]. *Numbers Game.* 26 (1952) 43.
Tingley, Daryl. *Monochromatic Lines in the Plane.* 48 (1975) 271-274.
Todd, John. *see* Taussky, Olga.
Tolsted, Elmer. *An Elementary Derivation of the Cauchy, Hölder, and Minkowski Inequalities from Young's Inequality.* 37 (1964) 2-12.
Tomandl, Daniel A. *see* Wilde, Edwin F.
Towber, Jacob. *A Formula for the nth Prime.* 23 (1949) 55-57.
Town, George R. *An Approximate Formula for Evaluating Factorial Numbers.* 10 (1936) 259-267.
Townsend, Carl G. *Congruence-Preserving Mappings.* 43 (1970) 37-38.
Trahan, Donald H. *A New Approach to Integration for Functions of a Complex Variable.* 38 (1965) 132-140.
———. *A New Type of Mean Value Theorem.* 39 (1966) 264-268.
Tremblay, Althéod. *Generalization of Pascal's Arithmetical Triangle.* 11 (1937) 255-258.
Trigg, Charles W. *A Census of Nine-Digit Determinants.* 36 (1963) 153-156.
———. *A Hexagonal Configuration.* 35 (1962) 70.
———. *A Magic Pentagram for [the Number] 1962.* 35 (1962) 228; *Comment* 37 (1964) 49-50.
———. *A Numerical Congruence.* 34 (1961) 358.
———. *A Property of Third Order Determinants.* 35 (1962) 78.
———. *A Property of Third Order Gnomon-Magic Squares.* 43 (1970) 70.
———. *A Rectified Equality.* 34 (1961) 163-164.
———. *A Remarkable Group of Antimagic Squares.* 44 (1971) 13.
———. *A Theorem on Determinants.* 34 (1961) 328.
———. *Alternate Primes in Arithmetic Progression.* 35 (1962) 42.
———. *An Expansion of Third Order Determinants.* 35 (1962) 234.
———. *An Oppenheim Inequality.* 36 (1963) 244.
———. *Bisection of Yin and of Yang.* 34 (1960) 107-108.

———. *Constructing a Third Order Magic Square.* 46 (1973) 99.
———. *Curiosa from [the Number] 1961.* 34 (1961) 321.
———. *Determinant with Square Value Independent of Four Elements.* 34 (1961) 385.
———. *Determinants for [the Number] 1961.* 34 (1961) 194.
———. *Getting Squared Away in [the Number] 1961.* 34 (1961) 168.
———. *Integer Solutions of [the Digital Expression] AB/(A+B).* 34 (1960) 119.
———. *Kaprekar's Routine With Five-Digit Integers.* 45 (1972) 121-129.
———. *More on Palindromes by Reversal-Addition.* 45 (1972) 184-186.
———. *Palindromes by Addition.* 40 (1967) 26-28; *Sequels* 42 (1969) 254-256; 45 (1972) 184-186, 186-187.
———. *Palindromic Cubes.* 34 (1961) 214.
———. *Permutations from [the Number] 1961.* 34 (1961) 406.
———. *Prime Portions of [the Number] 1961.* 34 (1961) 274.
———. *Rational Approximations of e.* 35 (1962) 38, 54.
———. *Second Order Perimeter-Magic and Perimeter-Antimagic Cubes.* 47 (1974) 95-97.
———. *Terminal Digits of $MN(M^2-N^2)$.* 34 (1961) 159-160; *Correction* 34 (1961) 233-235.
———. *The Infinitude of Primes.* 47 (1974) 162; *Sequel* 48 (1975) 92-96.
———. *The Nature of [the Number] $N = n(n+1)-1$.* 36 (1963) 120.
———. *3 x 3 Matrices from Knight's Moves.* 36 (1963) 36.
———. *Two Tromino Tessellations.* 35 (1962) 176.
———. *see also* Bankoff, Leon.
Tripp, M.O. *Teaching the Fundamentals of Mathematics.* 17 (1943) 225-227.
Trollope, J.R. *An Explicit Expression for Binary Digital Sums.* 41 (1968) 21-25.
Tucker, Alan. *Pólya's Enumeration Formula by Example.* 47 (1974) 248-256.
Tuckerman, Bryant. *Factorization of $x^{2n}+x^n+1$ Using Cyclotomic Polynomials.* 42 (1969) 41-42.
Tullier, Peter. *Are There Any Questions?* 14 (1940) 278.
Turner, Barbara. *A Geometric Proof that $\sqrt{2}$ is Irrational.* 50 (1977) 263.
Tyler, John. *see* Tierney, John A.
Tyson, George. *A Teaching Note.* 36 (1963) 105; *Comment* 36 (1963) 258.

U

Ulam, S.M. and Hyers, D.H. *On the Stability of Differential Expressions.* 28 (1954) 59-64.
———. *see also* Gardiner, Verna.
Unger, Leo. *An Abstract-Algebraic Proof of the Chinese Remainder Theorem.* 36 (1963) 119-120.
———. *Two Parametric Representations of a Circle in 3-Dimensional Euclidean Space.* 37 (1964) 100-111.
Urner, S.E. *Unified Freshman Mathematics.* 25 (1951) 29-35.
Usiskin, Zalman and Wayment, Stanley G. *Partitioning a Triangle Into 5 Triangles Similar To It.* 45 (1972) 37-42.
———. *Perfect Square Patterns in the Pascal Triangle.* 46 (1973) 203-208; *Comment* 48 (1975) 178.
Utz, W.R. *Some Fifth Degree Diophantine Equations.* 38 (1965) 161-163.

V

Vaidya, A.M. *On Complementing Sets of Nonnegative Integers.* 39 (1966) 43-44; *Comment* 39 (1966) 300-301.
———. *On Primes in [Arithmetic Progressions].* 40 (1967) 29-30.
———. *On Representing Integers as Sums of Odd Composite Integers.* 48 (1975) 221-223.
———. *see also* Shah, A.P.
Valdez, Juan. *A New Property of the Bernoulli Numbers.* 47 (1974) 144-145.
Valentine, Charles W. *Consonance and Congruence.* 35 (1962) 219-223.
Valentine, F.A. *see* Green, John W.
Valyocsik, Ernest W. *Evaluation of Determinants by Congruences.* 34 (1961) 218-220.
Van de Lindt, W.J. *A Geometrical Solution of the Three Factory Problem.* 39 (1966) 162-165.
Van der Vaart, H.R. and Yen, Elizabeth H. *Weak Sufficient Conditions for Fatou's Lemma and Lebesgue's Dominated Convergence Theorem.* 41 (1968) 109-117.
van der Waerden, B.L. *Hamilton's Discovery of Quaternions.* 49 (1976) 227-234.
Vandiver, H.S. and Weaver, Milo W. (*Parts III, IV*). *A Development of Associative Algebra and an Algebraic Theory of Numbers (I-IV).* 25 (1952) 233-250; 27 (1953) 1-18; 29 (1956) 135-151; 30 (1956) 1-8; *Errata* 30 (1957) 219.
———. *Congruence Methods as Applied to Diophantine Analysis.* 21 (1948) 185-192.
———. *On Conditional Fractional Equations in a Field, Involving One Unknown.* 32 (1959) 173-176.
———. *On the Use of the Equivalence Symbol and Parentheses Symbols in Associative Distributive Algebra.* 33 (1959) 13-20, 50; *Addendum* 36 (1963) 192-193.

van Heerden, P.J. *Logical Paradoxes are Acceptable in Boolean Algebra.* 39 (1966) 175-178.
Van Voorhis, W. *A "Reference Triangle" for Hyperbolic Functions.* 29 (1956) 157-158.
Vargo, Louis G. *A Nonparametric Model for Series [Sports] Competitions.* 50 (1977) 25-27.
———. *Orbit Transfer Groups.* 36 (1963) 79-80.
Vaughan, Herbert E. *Another Remark Concerning the Definition of a Field.* 39 (1966) 161-162.
Vautrain, Jeanne. *Motivation in Algebra.* 6:2 (1931) 4-5.
Venable, Tom C., Jr. *An Application of the Oscillation of a Function at a Point.* 44 (1971) 9-11.
Venit, Stewart. *The Convergence of Jacobi and Gauss-Seidel Iteration.* 48 (1975) 163-167.
Venkatramaiah, S. *A Proof of Feuerbach's Theorem.* 38 (1965) 217-218.
———. *A Remark on a Note of S.M. Shah [on Steiner's Theorem].* 39 (1966) 225.
Verdina, Joseph. *On Point Transformations.* 42 (1969) 187-193.
Verma, Sadanand. *A Note on Euler's ϕ-Function.* 38 (1965) 208-211.
———. *On a Combinatorial Proof.* 41 (1968) 136-138.
Verner, Lawrence. *The Number of Square Matrices of a Fixed Rank.* 50 (1977) 95-96.
Vest, M.L. *A Birational T_{n+2} Associated with a Rational Space C_n.* 16 (1942) 377-380.
———. *Notes on Two Curves Associated with a Variable Triangle.* 13 (1939) 215-222.
Viertel, William K. *Use of Hyperbolic Substitution for Certain Trigonometric Integrals.* 38 (1965) 141-144.
Vigder, J.S. *Consecutive Integers Having Equal Sums of Squares.* 38 (1965) 35-42.
Vinh, N.X. *Ellipse of Least Eccentricity.* 39 (1966) 203-205.
——— and Zirakzadeh, A. *On a Property of Logarithmic Spirals.* 41 (1968) 26-28.

W

Wade, T.L. *Euclidean Concomitants of the Triangle.* 17 (1943) 335-340.
———. *Tensor Algebra and Invariants.* 19 (1944) 3-10; 20 (1945) 5-10.
Wadycki, Walter J. *see* Henschel, Donald E.
Wagner, F.J. *The Occurrence of Digits.* 37 (1964) 177-178.
Wagstaff, Ronald and Tanner, Leslie R. *The Maximum of [the Sum] $\Sigma a_i b_j$.* 37 (1964) 46-47.
Walden, Earl. *Algebraic Surfaces Invariant Under the Symmetric G_{120} with Special Reference to Quintics and Sextics.* 15 (1941) 163-172.
Walker, B.M. *How a Lady's Dress Influenced Mathematical History.* 13 (1939) 233-236.
———. *The Higher Singularities of Algebraic Curves.* 12 (1938) 263-285.
Walker, Gordon. *The General Theory of Roulettes.* 12 (1937) 21-26.
———. *The Theory of Roulettes and Glissettes.* 13 (1939) 223-229.
Wall, H.S. *see* Scott, W.T.
Wallace, E.W. *Two-Dimensional Power-Associative Algebras.* 43 (1970) 158-162.
Wallace, K.D. *see* Crawford, R.R.
Wallace, Mike. *What Makes a Genius Tick? (An Interview with George Bergman).* 31 (1958) 282.
Walstrom, John E. and Berg, Murray. *Prime Primes.* 42 (1969) 232.
Wang, Chung Lie. *How to Derive the Formula "$H_r^n = C_r^{n+r-1}$."* 28 (1955) 271-273.
Wang, Ju-Kwei. *see* Hu, Men-Chang.
Ward, James A. *A Certain Bridge Tournament Seating Problem and Latin Squares.* 29 (1956) 249-253.
———. *A Solid of Revolution.* 19 (1944) 111-118.
———. *Graphical Representation of Complex Roots.* 11 (1937) 297-303.
———. *Note on the Quartic and Its Hessian.* 17 (1943) 165-167.
———. *Using the Hessian to Solve a Cubic Equation.* 9 (1935) 235-240.
Waterhouse, William C. *A Fact About Falling Bodies.* 44 (1971) 33-34.
Waterman, M.S. *Jacobi's Solution of Linear Diophantine Equations.* 48 (1975) 159-163.
———. *see also* Beyer, W.A.
Watson, P. *see* Gaskell, Robert W.
Waugh, Frederick V. and Maxfield, Margaret W. *Side-and-Diagonal Numbers.* 40 (1967) 74-83.
Wayment, Stanley G. *see* Usiskin, Zalman.
Wayne, Alan. *Finite Groups Generated by Involutions on a Line.* 24 (1951) 249-251.
Weaver, Charles S. *Geoboard Triangles with One Interior Point.* 50 (1977) 92-94.
Weaver, J.H. *An Experiment in Cooperative Teaching.* 11 (1937) 268-273.
———. *As to Teaching Procedures.* 10 (1936) 141-142.
———. *On a Cubic Curve Associated With a Triangle.* 11 (1937) 293-296.
———. *On the Cubic of Tschirnhausen.* 16 (1942) 371-374.
Weaver, Milo W. *Cosets in a Semi-Group.* 25 (1952) 125-136.
———. *see also* Vandiver, H.S.

Webber, W. Paul. *A Bit of History.* 5:7 (1931) 14-23.
———. *A Science of Education Proposed.* 8 (1934) 125-128.
———. *An Observation About Statistical Formulae.* 3:7 (1929) 18-19.
———. *Individual Study of Mathematics.* 9 (1935) 106-108.
———. *Introduction to Trigonometry from the Historical View Point.* 5:5 (1931) 14-17.
———. *On Generalization and Correlation Through Mathematics.* 5:7 (1931) 33-36.
———. *On Intuitive Geometry.* 6:2 (1931) 9-12.
———. *On Inverse Functions.* 6:7 (1932) 22-24.
———. *On Moment of Inertia.* 6:5 (1932) 29-31.
———. *On Periodic Functions.* 4:8 (1930) 12-17.
———. *On Teaching Mathematics for Discipline.* 7:1 (1932) 10-14; *Sequel* 7:2 (1932) 7-8.
———. *On the Fundamental Theorem of Algebra.* 7:5 (1933) 9-13.
———. *On the Law of Gravitation.* 6:1 (1931) 9-11.
———. *On the Sine Function.* 6:3 (1931) 12-13.
———. *On the Trisection of the General Angle.* 4:1 (1929) 22-24.
———. *On the Use of Complex Numbers.* 4:4 (1929) 15-16.
———. *Problem Solving [in Algebra].* 3:2 (1928) 6-8.
———. *Questions and Opinions [in Education].* 4:7 (1930) 5-8.
———. *Some Common Errors in Algebra.* 4:1 (1929) 9-12.
———. *The Actual and the Artificial in Analytic Geometry.* 5:4 (1930) 12-14.
———. *The Aesthetic in Teaching Mathematics.* 4:5 (1930) 11-15.
———. *Trigonometry Without Angles.* 5:1 (1930) 16-19.
Webster, R.J. *Morley's Triangle Theorem.* 43 (1970) 209-210.
Weckesser, C.L. *A Mechanical [Slide Rule] Device, "The X-Pone," for Pointing Off Decimals.* 28 (1954) 87-92.
Wei, Dzung-Shu. *Necessary and Sufficient Conditions That Regression Systems of Sums with Elements in Common Be Linear.* 17 (1943) 151-158.
Weiner, L.M. *Algebras Based on Linear Functions.* 28 (1954) 9-12.
———. *Note on Newton's Method.* 39 (1966) 143-145.
Weiss, Max L. *see* Brown, T.C.
Wells, Richard J. *Solution of Numerical Equations by Use of the Circle of Curvature.* 13 (1938) 67-72.
Wenner, B.R. *Continuous, Exactly K-to-One Functions on R.* 45 (1972) 224-225.
Weyers, Donald V. *A New Twist to an Old Problem [on Irrationality].* 38 (1965) 106.
White, John T. *A Note on Arc Length.* 43 (1970) 44.
Whitehead, Earl Glen, Jr. *The Cross Ratio on the Real Line.* 42 (1969) 193-195.
Whiteman, Albert Leon. *Theorems on Quadratic Residues.* 23 (1949) 71-74.
Whiteman, Russell A. *Concerning Envelopes of Certain Trigonometric Polynomials.* 38 (1965) 19-22.
Whitney, R.E. *Planar Incidence Geometries with Two Points Per Line.* 40 (1967) 265-267.
Whittlesey, E.F. *Finite Surfaces: A Study of Finite 2-Complexes.* 34 (1960) 11-22, 67-80.
Whyburn, Clifton T. *A Different Technique for the Evaluation of [the Integral]* $\int \sec \theta d\theta$. 42 (1969) 113.
Widder, D.V. *An Inversion of the Lambert Transform.* 23 (1950) 171-182.
———. *Complements to an Inversion Formula.* 46 (1973) 1-7.
Wiggin, Albert. *see* Christiano, John G.
Wiggins, Alvin D. *An Occupancy Problem Involving Placement of Pairs of Balls.* 45 (1972) 82-85; *Comments* 45 (1972) 281; 48 (1975) 48.
Wilansky, Albert. *A Fallacy in Differentiability.* 38 (1965) 108.
———. *An Induction Fallacy.* 39 (1966) 305.
———. *Dimensional Analysis and Homogeneous Functions.* 30 (1957) 154-155.
———. *Primitive Roots without Quadratic Reciprocity.* 49 (1976) 146.
———. *Spectral Decomposition of Matrices for High School Students.* 41 (1968) 51-59.
———. *see also* Daykin, D.E.
Wildberger, Norman. *A Solvable Diophantine Equation.* 49 (1976) 200-201.
Wilde, Edwin F. and Tomandl, Daniel A. *On Shuffling Cards.* 42 (1969) 139-142.
Wilder, Geo. F. *Multum in Parvo [: Large Numbers].* 4:2 (1929) 12-14.
Wilder, R.L. *Recollections and Reflections.* 46 (1973) 177-182.
Wilke, R.L. *see* Regan, Francis.
Wilkins, C.A. *Sprays and Cauchy's Distribution.* 33 (1960) 261-264.
Will, Alma. *Comparison of Two Methods of Teaching Pupils to Apply the Mechanics of Arithmetic to the Solution of Problems.* 5:2 (1930) 3-10.
Willerding, Margaret F. *Is the Algebra Taught in Colleges Really 'College Algebra?'* 27 (1954) 201-203.
Williams, K.P. *The General Education of the Second Degree.* 16 (1941) 37-43.
Williams, Kenneth S. *Another Proof of a Theorem of Niven [on Gaussian Integers].* 46 (1973) 39.

———. *Note on the Non-Euclidean Principal Ideal Domains.* 48 (1975) 176-177.
———. *Note on [the Integral]* $\int_0^\infty (\sin x/x)\,dx$. 44 (1971) 9-11.
———. *On Norrie's Identity.* 37 (1964) 322.
———. *On [the Sum]* $\Sigma_{n=1}^{\infty}(1/n^{2k})$. 44 (1971) 273-276.
———. *The Quadratic Character of 2 mod p.* 49 (1976) 89-90.
Williams, Leland H. *The Story of (BGG)$_i$ (i = 1,2,3) [Satire].* 35 (1962) 228.
Williams, Michael Z. and Stein, F. Max. *A Triple Product of Vectors in Four-Space.* 37 (1964) 230-235.
Williams, V.C. and Cater, F.S. *On the Rank of a Matrix.* 41 (1968) 249-250.
Willmott, Richard. *The Gnome and the Pearl of Wisdom: A Fable [of Infinity].* 50 (1977) 141-143; *Comment* 50 (1977) 223.
Wilson, Hazel Schoonmaker. *Notes on a Fraction Problem in College Algebra.* 28 (1955) 281-282.
Wilson, Jack C. *A Principal Ideal Ring That is Not a Euclidean Ring.* 46 (1973) 34-38.
Wilson, Mary Elizabeth. *see* Izard, Roberta.
Wingo, Charles E., Jr. *A New Look at an Old [Diophantine] Problem.* 32 (1959) 275-276, 288; *Comment* 33 (1960) 221-224.
Winter, B.B. *A Counterexample in Matrix Analysis.* 47 (1974) 152-153.
———. *see also* Hietala, H.J.
Winthrop, Henry. *Open Problems of Interest in Applied Mathematics.* 37 (1964) 112-118.
———. *The Mathematics of the Round-Robin.* 39 (1966) 22-28.
Wishard, G.W. *The Octo-Binary System.* 11 (1937) 253-254.
Wolf, James. *see* Chamberlin, Eliot.
Wolfe, J.M. *A Determinant Formula for Higher Order Approximation of Roots.* 31 (1958) 197-199.
Wollard, Edgar W. *The Calculation of Planetary Motions.* 14 (1940) 179-189.
Wong, Edward T. *see* Andrea, Stephen A.
Wong, James S.W. *On Solutions of Certain Riccati Differential Equations.* 39 (1966) 141-143.
———. *On Vector Representation of Rigid Body Rotation.* 41 (1968) 28-29; *Comment* 43 (1970) 38-39.
Wood, Frederick. *Sectioning Students on the Basis of Ability.* 11 (1937) 191-194.
Woodbridge, Margaret Young. *A Geometry of Clocks.* 22 (1949) 129-137.
Woods, Roscoe. *On the Teaching of the Trigonometric Functions of Half and Double Angles.* 8 (1934) 108-111.
Wrede, Robert C. *Conjugate Diameters and the Special Theory of Relativity.* 42 (1969) 227-232.
Wright, Harvey A. *Mathematics in the Liberal Arts College.* 9 (1935) 95-99.
Wylie, C.R., Jr. *A New Series of Line Involutions in [the Group]* S_3. 23 (1950) 125-131.
———. *A Series of Line Involutions in [the Group]* S_3 *Defined as Point Transformations of a* V_4^2 *in* S_5 *Into Itself.* 14 (1939) 125-133.
———. *An All-Purpose, 'Floating-Point' Chart for the Elementary Arithmetic Operations.* 43 (1970) 82-84.
———. *Note on the Projection of Three Collinear Points Into Three Other Collinear Points.* 13 (1939) 278-280.
———. *Some Remarks on Maclaurin's Conic Construction.* 41 (1968) 234-242.
———. *The [Differential Equation Model for] Torsional Vibration of a System of Disks Attached to a Heavy Shaft.* 40 (1967) 86-91.
———. *The Unification of Plane and Solid Analytic Geometry.* 13 (1939) 189-191.
———. *see also* Heath, Steven H.
———. *see also* Adamson, Steven.

Y

Yale, Paul B. *Automorphisms of the Complex Numbers.* 39 (1966) 135-141; *Sequel* 40 (1967) 213.
Yannopoulos, Alex J. *On a General Trihedron of a Curve.* 25 (1952) 189-190.
Yanosik, George A. *A Graphical Solution for the Complex Roots of a Cubic.* 10 (1936) 139-140.
———. *Graphical Solutions for Complex Roots of Quadratics, Cubics and Quartics.* 17 (1943) 147-150.
Yap, Leonard Y.H. *see* Chen, Louis H.Y.
Yaqub, Adil. *A Note on p-Like Rings.* 33 (1960) 287-290.
Yates, Robert C. *A Note on the 3-Bar Curve.* 14 (1940) 190-192.
———. *A Trisector.* 12 (1938) 323-324.
———. *An Ellipsograph.* 12 (1938) 213-215.
———. *Line Motion and Trisection.* 13 (1938) 63-66.
———. *Mechanically Described Curves.* 10 (1936) 134-138.
———. *The Angle Ruler, the Marked Ruler and the Carpenter's Square.* 15 (1940) 61-73.
———. *The Trisection Problem, Chapters I-V.* 15 (1940) 129-142; 15 (1941) 191-202, 278-293; 16 (1941) 20-28; 16 (1942) 171-182.
Yavne, Moshe. *see* Berry, Daniel M.
Yen, Elizabeth H. *see* Van der Vaart, H.R.
Yff. Peter. *A Representation of the Commutator Subgroup.* 29 (1956) 161.

Yocom, K.L. *see* Clever, C.C.
———. *see also* Jacobson, R.A.
Young, F.H. *Sin (A+B)*. 27 (1954) 208-209; *Comment* 28 (1954) 51.
Young, Samuel S.H. *An Arithmetical Problem Involving the Sum of Integers in [Arithmetic Progressions]*. 43 (1970) 89-92.
Young, Violet S. *A Plea for Mathematics*. 6:1 (1931) 12-17.
Youse, Bevan K. *Boundedness of the Sequence $(1+1/n)^n$*. 37 (1964) 50-51.

Z

Zant, James H. *Mathematics as a Field of Specialization for College Students*. 19 (1945) 247-253.
———. *Mathematics in a World at War--A Challenge to Mathematics Teacher*. 18 (1943) 77-80.
———. *Teaching Mathematics to the A.A.F. College Training Detachment (Air Crew)*. 18 (1944) 234-242.
———. *The New World of Mathematics*. 33 (1960) 211-217.
Zatzkis, Henry. *Volume and Surface of a Sphere in an N-Dimensional Euclidean Space*. 30 (1957) 155-158.
Zeigel, Marguerite. *A Problem in Projective Geometry*. 3:2 (1928) 4-5.
Zirakzadeh, A. *An Exact Perimeter Inequality for the Pedal Triangle*. 39 (1966) 96-99.
———. *see also* Vinh, N.X.
Zlot, William Leonard. *Difference Quotients and the Teaching of the Derivative*. 36 (1963) 63-64.
———. *Some Comments on the Role of the Axiom of Choice in the Development of Abstract Set Theory*. 32 (1959) 115-122.
Zuckerman, Herbert S. *see* Hewitt, Edwin.
———. *see also* Niven, Ivan.