Editorial Information

As of December 31, 1999, the backlog for this journal was approximately 3 issues. This estimate is the result of dividing the number of manuscripts for this journal in the Providence office that have not yet gone to the printer on the above date by the average number of articles per issue over the previous twelve months, reduced by the number of issues published in six months (the time necessary for editing and composing a typical issue). In an effort to make articles available as quickly as possible, articles are posted to to e-MATH individually soon after proof is returned from authors and before appearing in an issue.

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The first page must consist of a *descriptive title*, followed by an *abstract* that summarizes the article in language suitable for workers in the general field (algebra, analysis, etc.). The *descriptive title* should be short, but informative; useless or vague phrases such as "some remarks about" or "concerning" should be avoided. The *abstract* must be brief and reasonably self-contained. Included with the footnotes to the paper should be the 2000 *Mathematics Subject Classification* representing the primary and secondary subjects of the article. The classifications are accessible from `http://www.amg.org/msc`. The list of classifications will also be available in print starting with the 1999 annual index of *Mathematical Reviews*. The Mathematics Subject Classification footnote may be followed by a list of *key words and phrases* describing the subject matter of the article and taken from it. Journal abbreviations used in bibliographies are listed in the latest *Mathematical Reviews* annual index. The series abbreviations are also accessible from `http://www.ams.org/publications`. When the manuscript is submitted, authors should supply the editor with electronic addresses if available. These will be printed after the postal address at the end of each article.

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If the graphics package used does not support EPS output, the graphics file should be saved in one of the standard graphics formats—such as TIFF, PICT, GIF, etc.—rather than in an application-dependent format. Graphics files sent in an application-dependent format are not likely to be used. No matter what method was used to produce the graphic, it is necessary to provide a paper copy to the AMS.

Authors using graphics packages for the creation of electronic art should also avoid the use of any lines thinner than 0.5 points in width. Many graphics packages allow the user to specify a "hairline" for a very thin line. Hairlines often look acceptable when proofed on a typical laser printer. However, when produced on a high-resolution laser imagesetter, hairlines become nearly invisible and will be lost entirely in the final printing process.

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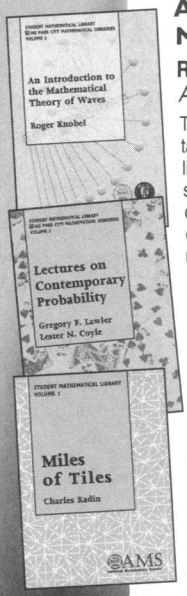

Recommended Text

An Introduction to the Mathematical Theory of Waves

Roger Knobel, *University of Texas-Pan American, Edinburg*

This book is based on an undergraduate course taught at the IAS/Park City Mathematics Institute, on linear and nonlinear waves. It is intended to be a text suitable for independent study by undergraduate students in mathematics, engineering, and science. The content of the book is meant to be self-contained, requiring no special reference material.

Student Mathematical Library, Volume 3; 2000; 196 pages; Softcover; ISBN 0-8218-2039-7; List $23; All AMS members $18; Order code STML/3

Recommended Text

Lectures on Contemporary Probability

Gregory F. Lawler, *Duke University, Durham, NC*, and **Lester N. Coyle**, *Loyola College, Baltimore, MD*

This volume is based on classes in probability for advanced undergraduates held at the IAS/Park City Mathematics Institute. It is derived from both lectures (Chapters 1–10) and computer simulations (Chapters 11–13) that were held during the program. The material is coordinated so that some of the major computer simulations relate to topics covered in the first ten chapters. The goal is to present topics that are accessible to advanced undergraduates, yet are areas of current research in probability. The combination of the lucid yet informal style of the lectures and the hands-on nature of the simulations allows readers to become familiar with some interesting and active areas of probability.

The volume concludes with a number of problems ranging from routine to very difficult. Of particular note are problems that are typical of simulation problems given to students by the authors when teaching undergraduate probability.

Student Mathematical Library, Volume 2; 1999; 99 pages; Softcover; ISBN 0-8218-2029-X; List $17; All AMS members $14; Order code STML/2

Supplementary Reading

Miles of Tiles

Charles Radin, *University of Texas, Austin*

In this book, we try to display the value (and joy!) of starting from a mathematically amorphous problem and combining ideas from diverse sources to produce new and significant mathematics—mathematics unforeseen from the motivating problem ...

***—from the* Preface**

The common thread throughout this book is aperiodic tilings; the best-known example is the "kite and dart" tiling. This tiling has been widely discussed, particularly since 1984 when it was adopted to model quasicrystals. The presentation uses many different areas of mathematics and physics to analyze the new features of such tilings. Although many people are aware of the existence of aperiodic tilings, and maybe even their origin in a question in logic, not everyone is familiar with their subtleties and the underlying rich mathematical theory. For the interested reader, this book fills that gap.

Student Mathematical Library, Volume 1; 1999; 120 pages; Softcover; ISBN 0-8218-1933-X; List $16; All AMS members $13; Order code STML/1

Advance Notice

Independent Study

Prime Numbers and Their Distribution

Gérald Tenenbaum, *Université Henri Poincaré, Nancy I, France*, and **Michel Mendès France**, *Université Bordeaux I, France*

From reviews for the French edition ...

This is a short introductory book on analytic number theory. The prerequisites are quite modest, but it still contains an impressive amount of information. A multitude of results is included, some of which were proved just recently ... this book is very well written. It is fun to read and at the same time presents most of the fundamental concepts and ideas in analytic number theory.

—Mathematical Reviews

There are two ways in which the book is exceptional. First, some familiar topics are covered with refreshing insight and/or from new points of view. Second, interesting recent developments and ideas are presented that shed new light on the prime numbers and their distribution among the rest of the integers.

This book is suitable for anyone who has had a little number theory and some advanced calculus involving estimates. Its engaging style and invigorating point of view will make refreshing reading for advanced undergraduates through research mathematicians. This book is the English translation of the French edition.

Student Mathematical Library; 2000; approximately 120 pages; Softcover; ISBN 0-8218-1647-0; List $17; All AMS members $14; Order code STML-TENENBAU

Forthcoming in the Series...

Problems in Mathematical Analysis I

Real Numbers, Sequences and Series

W. J. Kaczor and **M. T. Nowak**, *Marie Curie-Skłodowska University, Lublin, Poland*

Student Mathematical Library; 2000; approximately 405 pages; Softcover; ISBN 0-8218-2050-8; List $39; All AMS members $31; Order code STML-NOWAK

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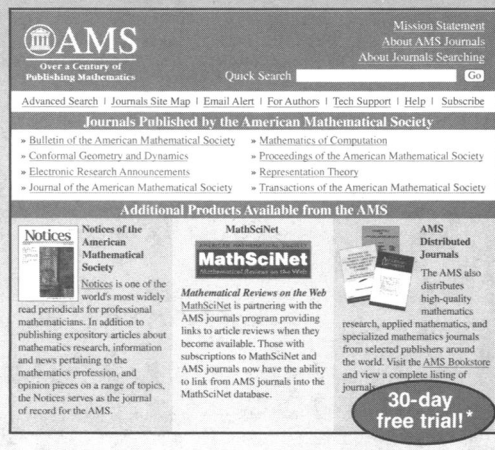

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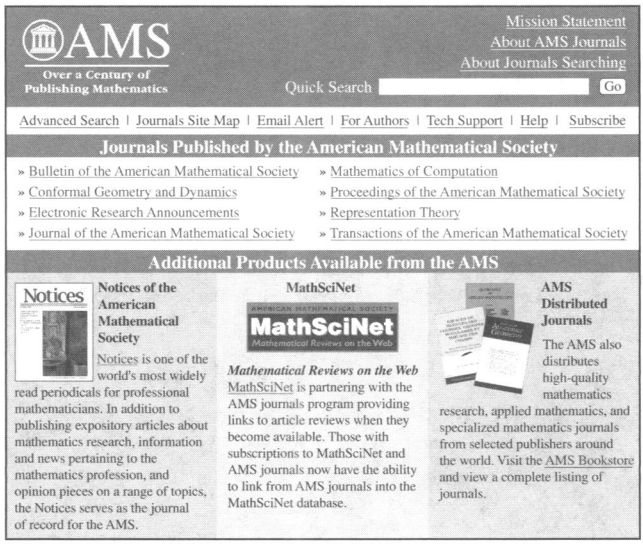

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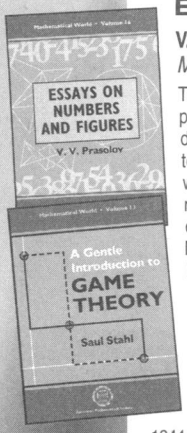

Independent Study

Essays on Numbers and Figures

V. V. Prasolov, *Independent University of Moscow, Russia*

This is the English translation of the book originally published in Russian. It contains 20 essays, each dealing with a separate mathematical topic. The topics range from brilliant mathematical statements with interesting proofs, to simple and effective methods of problem-solving, to interesting properties of polynomials, to exceptional points of the triangle. Many of the topics have a long and interesting history. The author has lectured on them to students worldwide.

The essays are independent of one another for the most part, and each presents a vivid mathematical result that led to current research in number theory, geometry, polynomial algebra, or topology.

Volume 16; 2000; 75 pages; Softcover; ISBN 0-8218-1944-5; List $15; All AMS members $12; Order code MAWRLD/16

Recommended Text

A Gentle Introduction to Game Theory

Saul Stahl, *University of Kansas, Lawrence*

This book is an excellent introduction to the mathematical aspects of game theory for beginners without a background in calculus.

—Journal of Mathematical Psychology

Game theory, in the sense of von Neumann and Morgenstern, studies models of competition in situations of uncertainty. It provides a means for both deriving desirable strategies and explaining naturally occurring behavior; it finds applications ranging from economics and politics to evolutionary biology. All this and its intrinsic human interest (read here how it elucidates the outcome of the Cuban Missile Crisis) make it a favorite undergraduate topic, particularly for students majoring outside mathematics. There is not a faster read in the realm of higher mathematics. Recommended for college libraries. Undergraduates and up.

—CHOICE

The mathematical theory of games was first developed as a model for situations of conflict, whether actual or recreational. It gained widespread recognition when it was applied to the theoretical study of economics by von Neumann and Morgenstern in *Theory of Games and Economic Behavior* in the 1940s. The later bestowal in 1994 of the Nobel Prize in economics on Nash underscores the important role this theory has played in the intellectual life of the twentieth century.

This volume is based on courses given by the author at the University of Kansas. The exposition is "gentle" because it requires only some knowledge of coordinate geometry; linear programming is not used. It is "mathematical" because it is more concerned with the mathematical solution of games than with their applications.

Existing textbooks on the topic tend to focus either on the applications or on the mathematics at a level that makes the works inaccessible to most non-mathematicians. This book nicely fits in between these two alternatives. It discusses examples and completely solves them with tools that require no more than high school algebra.

In this text, proofs are provided for both von Neumann's Minimax Theorem and the existence of the Nash Equilibrium in the 2×2 case. Readers will gain both a sense of the range of applications and a better understanding of the theoretical framework of these two deep mathematical concepts.

Volume 13; 1999; 176 pages; Softcover; ISBN 0-8218-1339-0; List $25; All AMS members $20; Order code MAWRLD/13

Supplementary Reading

Kvant Selecta: Algebra and Analysis, I
Volume 14

Kvant Selecta: Algebra and Analysis, II
Volume 15

Serge Tabachnikov, *University of Arkansas at Fayetteville*, Editor

These volumes are the first volumes of articles published from 1970 to 1990 in the Russian journal, *Kvant*. The influence of this magazine on mathematics and physics education in Russia is unmatched. This collection represents the Russian tradition of expository mathematical writing at its best.

Articles selected for these two volumes are written by leading Russian mathematicians and expositors. Some articles contain classical mathematical gems still used in university curricula today. Others feature cutting-edge research from the twentieth century.

The articles in these books are written so as to present genuine mathematics in a conceptual, entertaining, and accessible way. The volumes are designed to be used by students and teachers who love mathematics and want to study its various aspects, thus deepening and expanding the school curriculum.

The articles in the first volume are mainly devoted to various topics in number theory, whereas the second volume treats diverse aspects of analysis and algebra.

Volume 14; 1999; 155 pages; Softcover; ISBN 0-8218-1002-2; List $24; All AMS members $19; Order code MAWRLD/14
Volume 15; 1999; 165 pages; Softcover; ISBN 0-8218-1915-1; List $24; All AMS members $19; Order code MAWRLD/15

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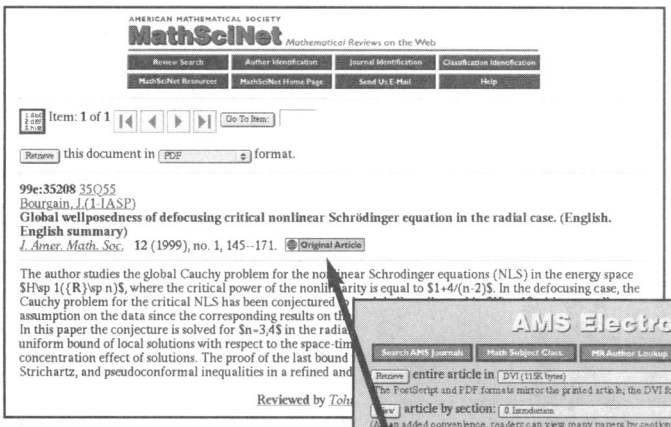

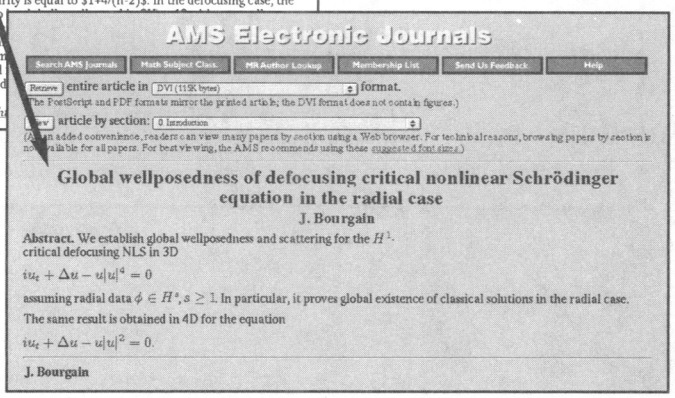

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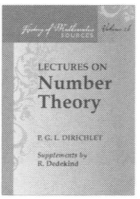
Lectures on Number of Theory

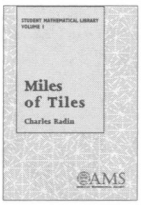
P. G. L. Dirichlet with supplements by R. Dedekind



Lectures on Number Theory is the first of its kind on the subject matter. It covers most of the topics that are standard in a modern first course on number theory, but also includes Dirichlet's famous results on class numbers and primes in arithmetic progressions.

Miles of Tiles

by Charles Radin



This is the first volume in the Student Mathematical Library, a new series of undergraduate studies in mathematics. The common thread throughout this book is aperiodic tilings; the best-known example is the "kite and dart" tiling. The presentation uses many different areas of mathematics and physics to analyze the new features of such tilings. The book's multidisciplinary approach and extensive use of illustrations make it useful for a broad mathematical audience.

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