

where $\nu = 2r + 1$, $\sigma = 1$ if n is odd, and $\sigma = 0$ if n is even. The integer coefficients c_j are given to a maximum of 28 digits, corresponding to $n = 1(1)28$.

This reviewer doubts that the table will be very useful, since the asymptotic expansion gives little accuracy unless the order is very low or q is extremely large. It should be noted that for the first 15 orders, the characteristic values of Mathieu's equation have been tabulated from $q = 0$ to $q = \infty$. (See references 20.53 and 20.58 on p. 746 of the NBS *Handbook* [1].)

Nevertheless, no one can predict with certainty that a table will find no application.

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1. National Bureau of Standards, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, Applied Mathematics Series, No. 55, U. S. Government Printing Office, Washington, D. C., June 1964.

92[X].—PETER HENRICI, *Elements of Numerical Analysis*, John Wiley & Sons, Inc., New York, 1964, xv + 328 pp., 23 cm. Price \$8.00.

The author's aim, as stated in the Preface, is to produce a textbook that will appeal to mathematicians. In order to do so, he has tried to suppress the *art* and emphasize the *mathematical discipline* by stressing unifying principles. To achieve a balance between the theoretical and practical, he has made a clear-cut distinction between algorithms and theorems.

The table of contents shows the range of material covered:

Introduction.

- Chapter 1. What is numerical analysis?
2. Complex numbers and polynomials.
3. Difference Equations.

Part One. Solution of Equations.

- Chapter 4. Iteration.
5. Iteration for Systems of Equations.
6. Linear Difference Equations.
7. Bernoulli's Method.
8. The Quotient-Difference Algorithm.

Part Two. Interpolation and Approximation.

- Chapter 9. The Interpolating Polynomial.
10. Construction of the Interpolating Polynomial: Methods Using Ordinates.
11. Construction of the Interpolating Polynomial: Methods Using Differences.
12. Numerical Differentiation.
13. Numerical Integration.
14. Numerical Solution of Differential Equations.

Part Three. Computation.

- Chapter 15. Number Systems.
16. Propagation of Round-off Error.

Bibliography.

Index.

It will be observed that linear algebraic equations and matrix theory have been omitted " . . . because I feel that this topic is best dealt with in a separate course". It should also be observed that Part Three, on Computation, covers less than 10 % of the entire book.

The book is written in the author's usual clear, elegant style and achieves what he set out to do.

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93[X].—GÜNTER MEINARDUS, *Approximation von Funktionen und ihre numerische Behandlung*, Springer-Verlag, Berlin, 1964, viii + 180 pp., 23 cm. Price DM 49.

This book is a well-organized introduction to approximation theory. The presentation begins with fundamentals and progresses to the frontiers of present knowledge in many areas. The book is rather short, but is organized so as to present a surprisingly large number of results. This is accomplished by the use of many "small type" sections where references to proofs, rather than proofs, are given. The level is about the same as the book of Achieser (i.e., roughly second-year graduate level). The computational problem for Tchebycheff approximation is considered in some detail and depth.

The book is divided into Part 1: Linear Approximation (124 pages) and Part 2: Nonlinear Approximation (47 pages). The chapter headings of Part 1 indicate its contents: 1. The General Linear Approximation Problem, 2. Closed Systems, 3. General Theory of Linear Tchebycheff Approximation, 4. Special Tchebycheff Approximation, 5. Degree of Convergence for Trigonometric and Polynomial Approximation, 6. Polynomial Approximation, 7. Numerical Methods for Linear Tchebycheff Approximation.

Part 2 consists of three chapters: 8. General Theory of Nonlinear Tchebycheff Approximation (primarily an exposition of recent results of Meinardus and Schwedt), 9. Rational Approximation (a combination of selected classical results—of de la Vallée Poussin and of Walsh—and recent results, including Werner's analysis of the Remes algorithm for rational approximation), 10. Exponential Approximation (an exposition of the recent results of Rice).

There is a well-selected bibliography of about 160 items. It is up to date, and includes both Russian and western literature.

In conclusion, this book is highly recommended as an introduction to modern approximation theory.

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94[X].—D. S. MITRINOVIĆ, *Elementary Inequalities*, P. Noordhoff Ltd., Groningen, The Netherlands, 1964, 159 pp., 22 cm. Price \$5.75.

This is a short book devoted to various applications of the elementary inequalities, which is to say, those associated with the names of Cauchy-Schwarz, Hölder, Minkowski, Jensen, et al., and to the derivation of numerous special inequalities for the elementary functions of analysis. There is also a brief chapter on geometric inequalities.

It reads well, is attractively printed, and is highly recommended. It will be