Henry Tucker; Computation of Power Spectra, Melvin Klerer; Random-Number Generation and Monte-Carlo Methods, T. E. Hull.

Applications. Symbolic Logic and Practical Applications, J. V. Wait; Information Theory and Codes, Harvey L. Garner; Linear Programming, Lloyd Rosenberg; Nonlinear Programming, E. M. L. Beale; Commercial Data Processing, Robert V. Head; Digital Computers for Logical Design, Richard E. Merwin and Jere L. Sanborn; Information Retrieval, Jack Belzer and Orrin E. Taulbee; Some Parameter-optimization Techniques, Robert B. McGhee; Scheduling and Inventory Control, Jerry L. Sanders; Real-time Operations with Small General-purpose Computers, Barbara W. Stephenson.

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79[2.05, 2.10, 2.15, 2.35, 2.55, 3, 4].—DAVID G. MOURSUND & CHARLES S. DURIS, *Elementary Theory and Application of Numerical Analysis*, McGraw-Hill Book Co., New York, 1967, xi + 297 pp., 24 cm. Price $8.95.

The authors' objectives are to provide an introduction to modern numerical analysis at the sophomore-junior level, to describe a few selected but important methods and algorithms with mathematical rigor, paying due regard to error analysis, and concurrently, to review and solidify some basic relevant concepts of elementary calculus. These objectives have been attained to a remarkable degree, and the book can be highly recommended for its intended use. The chapter headings are: 1. Solution of equations by fixed-point iteration, 2. Matrix computations and solution of linear equations, 3. Iterative solution of systems of equations, 4. Polynomials, Taylor's series, and interpolation theory, 5. Errors and floating-point arithmetic, 6. Numerical differentiation and integration, 7. Introduction to the numerical solution of ordinary differential equations, 8. Numerical solution of ordinary differential equations. Each chapter contains numerous numerical examples, programs in FORTRAN with sample outputs, and a large number of exercises, mostly of the "drill" type.

W. G.

80[2.05, 6, 7].—MARTIN AVERY SNYDER, *Chebyshev Methods in Numerical Approximation*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1966, x + 114 pp., 24 cm. Price $7.50.

This is another volume of the Prentice-Hall Series in Automatic Computation. It is concerned with methods for constructing polynomial and rational approximations to functions. Emphasis is given to those methods employing Chebyshev polynomials (Chebyshev series, economization of power series, Lanczos' τ-method, Maehly's method, economization of continued fractions), although other miscellaneous methods are also considered (Padé approximation, Kopal's method, Thiele's continued fraction). Contrary to what the title might suggest, minimax approximation is discussed only incidentally. There are two introductory chapters, one de-

voted to general remarks on approximation, the other to properties of Chebyshev polynomials, and an appendix with some material on linear difference equations with constant coefficients and Bessel functions. The book concludes with a list of formulas.

Unfortunately, the quality of the exposition does not live up to the standards one has come to expect from this series. Not only is the treatment inexcusably superficial, but the author is given to loose terminology, and inaccurate, sometimes misleading, or even faulty, statements. When discussing Chebyshev expansions, for example, the discrete orthogonality property of Chebyshev polynomials is stated incompletely (p. 30), and as stated does not yield the expression for the expansion coefficients given later. Further on, the author derives the Chebyshev expansion for b^{zx}, not noting that it follows directly from the previously derived expansion for e^{zx} (by replacing z by $z \ln b$). On p. 66, in connection with the equivalence of power series and continued fractions (Euler's formulas) the author states that by taking the first few convergents of the continued fraction, one obtains "rational approximations to any function that has a power series expansion," apparently unaware that the convergents are identical with the partial sums of the power series. The remark that follows, concerning convergence of continued fractions, is entirely out of place in this context. The list of inadequacies, such as these, could be continued at some length.

According to the preface, the "book is intended to be used either as a textbook at the advanced undergraduate or graduate level or as a handbook for people actively engaged in the field." It seems to this writer that the serious shortcomings of the exposition preclude classroom use of the book, and as a reference book it is lacking in precision and completeness.

W. G.

81[2.10, 2.25, 3,.4, 5, 6, 7, 8, 12, 13.05, 13.15].—BERTRAM MOND, Editor, *Blanch Anniversary Volume*, Aerospace Research Laboratories, Office of Aerospace Research, United States Air Force, 1967, 379 pp., 29 cm. Unbound copies of this volume can be purchased at $3.00 per copy from Clearing House for Federal, Scientific and Technical Information, Springfield, Virginia 22151.

This is a collection of papers on a variety of subjects presented to Dr. Gertrude Blanch on the occasion of her retirement as a senior scientist from the Aerospace Research Laboratories at Wright-Patterson Air Force Base. The contributors and their titles are as follows:

Gaetano Fichera, Dedication

John V. Armitage, The Lax-Wendroff method applied to axial-symmetric swirl flow

Henry E. Fettis, Calculation of toroidal harmonics without recourse to elliptic integrals

Gaetano Fichera, Generalized biharmonic problems and related eigenvalue problems

Karl G. Guderley and Marian Valentine, On error bounds for the solution of systems of ordinary differential equations

H. Leon Harter, Series expansions for the incomplete gamma function and its derivatives