

Part V. Numerical Solution of Equations

9. The Solution of Transcendental Equations—J. F. Traub
10. The Numerical Solution of Polynomial Equations and the Resultant Procedures—Erwin H. Bareiss
11. Alternating Direction Methods Applied to Heat Conduction Problems—Jerome Spanier

Part VI. Miscellaneous Methods

12. Random Number Generation—Jack Moshman
13. Rational Chebyshev Approximation—Anthony Ralston

E. I.

37[2.05, 2.10, 2.20, 2.35, 3, 4, 5].—ROYCE BECKETT & JAMES HURT, *Numerical Calculations and Algorithms*, McGraw-Hill Book Co., New York, 1967, xi + 298 pp., 24 cm. Price \$9.95.

The purpose of this text is to train advanced undergraduate and beginning graduate engineers in numerical methods. The scope of the book may be indicated by listing the chapter headings: Introduction to Computers, The Flow Chart, Non-linear Algebraic Equations, Simultaneous Linear Equations, Determinants and Matrices, Interpolation and Numerical Integration, Initial-Value Problems, Finite Differences and Boundary-Value Problems, and Data Approximation. Each chapter contains flow charts of suitable algorithms for implementing the numerical procedures and a large selection of problems.

The material in the book is carefully selected and appears to be well written.

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38[2.05, 3, 131].—S. I. ZUKHOVITSKIY & L. I. AVDEYEVA, *Linear and Convex Programming*, W. B. Saunders Co., Philadelphia, Pa., 1966, viii + 286 pp., 25 cm. Price \$8.00.

What sets this book aside from most linear programming books are the two last chapters on Chebyshev approximation and convex programming. The simplex method is used for the solution of inconsistent linear systems (with or without constraints) and an algorithm is presented for Chebyshev approximation by rational functions. The chapter on convex programming gives a description, a convergence proof and a numerical example, worked out in detail, of an algorithm of feasible directions for solving convex programs. The case of quadratic programming is also discussed in detail including a finite algorithm. The first four chapters cover the basic material of linear programming and applications to production planning, optimal trimming problems, agricultural problems, allocation problems, military problems, game theory and transportation problems. There is a brief section on integer programming.

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