

Introduction to Numerical Analysis, by C.-E. Fröberg. Addison-Wesley Publishing Co., Inc., Reading, Mass., 1965. x + 340 pages. \$8.95.

The present book is a translation of the Swedish edition published in 1962. The author is in the Department of Numerical Analysis at the University of Lund. The book is intended for those students with a mathematical background of elementary differential and integral calculus and differential equations.

The first chapter discusses number systems, errors in computation and the computation of functions using binary representation. The second chapter considers the solution of nonlinear equations, and deals with the Newton-Raphson, Bairstow, Graeffe and Quotient - Difference methods. Chapter 3 gives a review of those parts of matrix algebra necessary in numerical analysis, and serves as an introduction to the following three chapters on the solution of systems of linear algebraic equations, inversion of matrices and eigenvalue problems. In Chapter 7 the calculus of finite difference is introduced. The following five chapters consider interpolation, numerical differentiation and integration, summation and multiple integration. Difference equations and the numerical solution of ordinary and partial differential equations are considered in the next three chapters. Chapter 16 considers least-square polynomial approximation, least-square trigonometric approximation, and approximation with exponential functions, Chebyshev polynomials, continued fractions and rational functions. Chapter 17 gives a very brief discussion of random number generation and Monte Carlo problems. Chapter 18 introduces the simplex method of solving the special case of linear programming problems known as transportation problems.

This book should serve as an excellent text at the senior undergraduate or graduate level as a thorough introduction to the modern aspects of numerical analysis. Although flow diagrams and computer programs for particular algorithms are not given, the treatment of numerical analysis in the text reflects the great influence of high-speed digital computers.

Finally, the translation into English is of high quality throughout the book.

K. W. Smillie, Edmonton

The Elements of Computational Mathematics, edited by S.B. Norkin. Pergamon Press, New York, 1965. xiii + 192 pages. \$6.00.

This is a translation of a book written by several Russian mathematicians, on the basic theory of computation. The approach to the subject is classical, but the exposition is extremely clear and the topics

are presented in their simplest form. Thus, in the case of linear interpolation an expression for the remainder term is derived, but for the general n th order interpolation, it is simply stated.

The first two chapters cover the rules for operating with approximate numbers, rounding off numbers, estimating errors, and constructing tables. The remaining chapters deal with procedures for solving actual problems and the theory on which they are based. These include the approximate solution of equations, systems of linear equations, interpolation polynomials, approximate computation of integrals, and approximate integration of differential equations. Problems are included at the end of every Chapter.

The book is primarily a numerical methods text but without a disregard of numerical analysis results. Thus in many examples, the answer is accompanied by an estimate of the remainder term or, in the case of iterative methods, conditions for convergence are included. In some ways the book is similar to Stanton's "Numerical Methods for Science and Engineering" but without the extensive numerical calculations.

It was interesting to note that the only English language texts included in the list of recommended literature of the original Russian edition were W.E. Milne's "Numerical Calculus" (1949) and "Numerical Solution of Differential Equations" (1953).

Charlotte Froese, University of British Columbia

Probability, by Grace E. Bates. (A-W Series in Introductory Mathematics). Addison-Wesley Publishing Company, Inc., 1965. v + 58 pages. \$1.00.

This booklet is an interesting attempt to introduce the beginning college student to the subject of probability in preparation for more extended courses. The treatment is confined to finite sample spaces, thereby avoiding calculus, and begins with the use of Venn diagrams in the handling of the probability of the union of several events and of conditional probability. Tree diagrams are then introduced, this being a feature stressed throughout. There follows a discussion of the binomial distribution whose application to acceptance sampling leads naturally to operating-characteristic curves. The main text is concluded with a section on Markov chains, an appendix providing a four-page account of the necessary matrix theory. Another appendix deals with permutations and combinations. Throughout there are many exercises, mostly quite easy, with answers to all. The reviewer feels that the account will serve well to whet the student's appetite and clearly the author's aim has not been to attempt any systematic coverage of even the most basic material. Thus the reader does not hear of expected values, including the mean, nor of the Poisson and the normal distributions. It therefore comes as somewhat of a shock to learn that the booklet "can serve as