trying to estimate accuracy and on using a helpful layout. Actually, only a small part of the book would be irrelevant to someone with access to a high-speed automatic computer.

Problems of varying difficulty, taken largely from the London University examinations, follow each chapter, and answers are given where appropriate.

Chapter headings, with the methods chosen for explanation, are: Linear Algebraic Equations (elimination with row interchanges, attainable accuracy when the data are approximate, iteration on the residuals, Gauss-Seidel and relaxation methods); Non-linear Algebraic Equations (graphs, regula falsi, Newton and Graeffe methods); Finite Differences (the basic difference operators, propagation of table errors); Interpolation, Differentiation, and Integration (usual basic formulas, preparation of tables, inverse interpolation); Ordinary Differential Equations (graphs; series; Picard, predictor-corrector and Fox-Goodwin methods; applications to linear, non-linear, first- and second-order, initial-value and boundary-value problems); Functions of Two Variables (basic formulas, partial differential operators, relaxation); Miscellanea (brief notes on: approximating functions, difference equations, Gauss integration formulas, Lagrangian interpolation, eigenvalues and vectors, Runge-Kutta methods, and summation of series).

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33 [X, Z].—BRUCE W. ARDEN, *An Introduction to Digital Computing*, Addison-Wesley Publishing Co., Inc., Reading, Massachusetts, 1963, ix + 389 p., 23 cm. Price $8.75.

As the author states in his preface, this is a text for an undergraduate introductory course in digital computing techniques. Integral calculus is the only prerequisite.

The first third of the book introduces the student to computer programming, the basic structure of digital computers and number systems. In his treatment of computer programming, the author uses the MAD language as an example and carefully guides the student through the various types of statements which go into a computer program. Use of flow charts is illustrated and machine language is discussed briefly. Arithmetic operations, scaling, and rounding are also presented in introductory fashion.

A little more than a third of the book is devoted to numerical methods. The topics include finite differences, interpolation, numerical integration, the solution of linear algebraic equations, least-squares approximation, and the solution of ordinary differential equations. In most instances the methods are presented with accompanying programs and flow charts, but with little or no analysis.

The final sixty pages deal with non-numerical problems such as sorting, compilers, and formal differentiation.

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