

- 12 [9].—HORST G. ZIMMER, *Computational Problems, Methods, and Results in Algebraic Number Theory*, Lecture Notes in Math., No. 262, Springer-Verlag, Berlin, Heidelberg, New York, 1972, 103 pp., 25 cm. Price D.M. 16,—.

This is an excellent survey of problems, methods of computation, and tabular matter in the general area of algebraic number theory. There are 12 chapters, headed: Finite Fields, Factorization of Polynomials, Galois Groups, Continued Fractions, Field Extensions, Modules and Orders, Products of Linear Forms, Units in Algebraic Number Fields, Class Numbers of Algebraic Number Fields, Class Groups and Class Fields of Algebraic Number Fields, Diophantine Equations, and the Hasse Principle for Cubic Surfaces. Each chapter contains a concise theoretical discussion of the relevant subject matter, a description of the main computational algorithms required, a statement of the significant problems in the area, and a wealth of information on tabular material and results obtained by computation. There is an extensive bibliography containing 408 items, some of which are manuscripts yet unpublished. Although no claim to completeness is made by the author (indeed, the subject matter grows too fast to allow any such claim) the material presented is comprehensive, important, and arranged in an attractive and easily assimilated manner. The author has performed a valuable service to the mathematical community in producing this compilation, and it should retain its interest for a long time to come.

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- 13 [12].—JONATHAN L. GROSS & WALTER S. BRAINERD, *Fundamental Programming Concepts*, Harper & Row, Publishers, New York, 1972, x + 304 pp., 24 cm. Price \$8.95.

This book is intended for use as a text in an introductory computer programming course, probably for those outside the field of computer science. It uses the BASIC programming language. About the first fifth of the book is concerned with teaching BASIC itself, and the remainder is concerned with various applications.

The most appealing aspect of this text is the wide range of interesting examples that the authors have chosen. There are chapters devoted to information processing, character manipulation, simple numerical methods, simulation using Monte Carlo methods, solution of puzzles, and artificial intelligence. Each of these chapters contains sample programs for several different problems, as well as a good collection of exercises. The variety and imaginativeness of these problems is illustrated by the chapter on simulation, which contains the following programs: simulation of pollution level in a lake; results of two different betting policies at roulette; waiting times for tellers at a bank; political polling; and a search problem in archaeology. Typical programs for these problems consist of about 25 BASIC statements, which should indicate how difficult these problems are.

The book is rather fast-paced, and I suspect that the typical student in a