can be embedded into the multiplicative group **C*** *of complex numbers.* And why simplify the true state of affairs and assert that *any* odd prime has a representation as a sum of two squares (Theorem 2.7)? Why, conversely, make something simple as *Pratt's test* (Section 2.6) so complicated that it actually becomes wrong? One can only admire the originality of the mistakes that are made.

In conclusion, this tour of *Primality and Cryptography* should not be taken by number theorists that wish to be informed about the many connections that exist between number theory and cryptography; the primality excursion is somewhat *adventurous*; and what is said about cryptography is not likely to be of interest outside the theoretical computer science community. But who knows, one day it may become just as useful as number theory itself.

H. W. LENSTRA, JR.

Department of Mathematics
University of California, Berkeley
Berkeley, California 94720

9[68-01, 68Q25].—LYDIA KRONSJÖ, *Algorithms: Their Complexity and Efficiency,* 2nd ed., Wiley, Chichester, 1987, xiii + 363 pp., $23\frac{1}{2}$ cm. Price $49.95.

The first edition of this book was reviewed in [1]. At that time, the book provided a welcome contrast to other books on algorithms by concentrating on the analysis of basic techniques used in Scientific Computing. The majority of these texts still remains centered around problems from Graph Theory, Combinatorics, Operations Research, and Logic. So it is nice that this different approach continues to be a viable alternative.

The overall structure of the book remains the same: about two thirds devoted to numerical techniques, and one third to sorting and searching. The apparent deficiency of not addressing NP-completeness has not been remedied by incorporating this subject into the text. Rather, the author opted to write a companion book devoted to treating NP-completeness in detail.

On the whole, this is a book one should consider using in a seminar on a modern approach to numerical analysis or on a more diversified view of algorithms.

CHRISTOPH M. HOFFMANN

Department of Computer Sciences
Purdue University
West Lafayette, Indiana 47907

1. C. M. HOFFMANN, Review 5, *Math. Comp.*, v. 38, 1982, pp. 651–652.

10[65–06].—EDUARDO L. ORTIZ (Editor), *Numerical Approximation of Partial Differential Equations,* North-Holland Mathematics Studies, vol. 133, North-Holland, Amsterdam, 1987, xii + 433 pp., 24 cm. Price $77.75/Dfl. 175.00.

This volume contains selected papers from the International Symposium on Numerical Analysis held at the Polytechnic University of Madrid on September 17–19,

1985. In addition to 9 invited papers there are 28 contributed papers organized in five parts: Results on Computational Linear Algebra; Discrete Variable Methods; Polynomial and Rational Approximation Methods; Variational Methods and Special Techniques; Applications. The titles and authors of the invited papers are: "Recent progress in the two-dimensional approximation of three-dimensional plate models in nonlinear elasticity" by Philippe G. Ciarlet; "Formulation of alternating-direction iterative methods for mixed methods in three space" by Jim Douglas, Jr., Ricardo Durán and Paola Pietra; "Iterative methods for singular systems" by Ivo Marek; "On different numerical methods to solve singular boundary problems" by Francisco Michavila; "Some numerical techniques for the solution of problems related to semiconductor devices" by John J. H. Miller; "Recent progress in the numerical treatment of singular problems for partial differential equations with techniques based on the tau method" by Eduardo L. Ortiz; "Present state and new trends in parallel computation" by Rafael Portaencasa and Carlos Vega; "Finite element methods for treating problems involving singularities, with applications to linear elastic fracture" by J. R. Whiteman; "Finite element solution of the fundamental equations of semiconductor devices" by Miloš Zlámal.

<div style="text-align: right">W. G.</div>

11[41–02].—C. K. CHUI, L. L. SCHUMAKER & J. D. WARD (Editors), *Approximation Theory V*, Academic Press, Orlando, Fla., 1986, xviii + 654 pp., $23\frac{1}{2}$ cm. Price $65.00.

These are the proceedings of the Fifth International Symposium on Approximation Theory held at Texas A&M University in College Station, Texas, January 13–17, 1986. They contain nine survey papers (229 pages) and 98 short research papers (390 pages). The titles of the survey papers, and their authors, are: "Positive quadrature methods and positive polynomial sums" by Richard Askey; "Bases in function spaces" by Z. Ciesielski; "Some recent convergence results on diagonal Padé approximants" by A. A. Gonchar; "Box splines" by Klaus Höllig; "Polynomial approximation numbers, capacities and extended Green functions for C and C^N" by J. Korevaar; "Group theoretical methods in approximation theory, elementary number theory, and computational signal geometry" by Walter Schempp; "Some recent results on Walsh theory of equiconvergence" by A. Sharma; "Scientific computation on some mathematical conjectures" by Richard S. Varga; "Some constrained approximation problems" by Joseph D. Ward. The volume concludes with an update of some 450 additional items to the bibliography on Bernstein type operators [1] published in the proceedings of the previous conference.

<div style="text-align: right">W. G.</div>

1. HEINZ H. GONSKA & JUTTA MEIER, "A bibliography on approximation of functions by Bernstein type operators (1955–1982)," *Approximation Theory IV* (C. K. Chui, L. L. Schumaker & J. D. Ward, Editors), Academic Press, New York, 1983, pp. 739–785.