REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the American Mathematical Society classification scheme. The 1980 Mathematics Subject Classification (1985 Revision) can be found in the December index volumes of Mathematical Reviews.

36[65–01].—KENDALL ATKINSON, *Elementary Numerical Analysis*, Wiley, New York, 1985, xii + 416 pp., 24cm. Price $31.95.

This book is a first-rate textbook for a basic course in numerical analysis. As stated in the preface, the author has several objectives in teaching the course to students. "First, they should obtain an intuitive and working understanding of some numerical methods for the basic problems of numerical analysis (as specified by the chapter headings). Second, they should gain some appreciation of the concept of error and of the need to analyze and predict it. And third, they should develop some experience in the implementation of numerical methods using a computer." The material presented in this textbook is consistent with these objectives. The range of topics dealt with in the book is illustrated by the chapter titles: Taylor Polynomials, Computer Representation of Numbers, Error, Rootfinding, Interpolation, Approximation of Functions, Numerical Integration and Differentiation, Solution of Systems of Linear Equations, and The Numerical Solution of Differential Equations. The author provides a wide range of problems at the end of each subsection and answers to selected problems. The book includes sample programs written in Fortran 77 (the formatting of the listing could be improved, but this is a minor issue). The text even includes an appendix describing sources of numerical software packages.

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37[65N30, 65N15, 73K25].—J. TINSLEY ODEN & GRAHAM F. CAREY, *Finite Elements, Mathematical Aspects*, Vol. IV, Prentice-Hall, Englewood Cliffs, N.J., 1983, viii + 195 pp., $23\frac{1}{2}$cm. Price $37.95.

Computer modelling of physical phenomena is a discipline that is developing rapidly and gaining name recognition (known variously as scientific computation or computational mathematics, with subfields such as computational mechanics or computational fluid dynamics). Some people identify this as the emergence of a third methodology in science and engineering, complementing experimental and theoreti-