

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 can be found in the December index volumes of Mathematical Reviews.

1[65F00].—ÅKE BJÖRCK, ROBERT J. PLEMMONS & HANS SCHNEIDER (Editors), *Large Scale Matrix Problems*, Elsevier North-Holland, New York, 1980, 403 pp., $23\frac{1}{2}$ cm. Price \$39.95.

This special issue presents 18 papers in numerical linear algebra. The papers are organized into four general categories. The first category—Least squares and applications—contains papers describing new or improved algorithms for solving large sparse linear least-squares problems. Applications include the adjustment of massive amounts of geodetic data and the fitting of multivariate data by tensor spline approximations. The second category—Systems of linear equations and applications—concerns methods for solving systems of linear equations. These involve both iterative and sparse matrix direct techniques as well as combinations of the two. Here the emphasis is on the speed of the algorithms in question. Eigenvalue problems—the third category—describes methods for computing eigenvalues of large sparse matrices. These methods involve Raleigh quotient minimization, the Lanczos algorithm, and variations of Arnoldi's method. The fourth and last category—Optimization problems—is concerned with selected problems involving optimization techniques. Linear complementarity problems, entropy maximization problems and applications and new techniques for solving certain classes of quadratic programming problems are discussed.

2[65D00].—ZVI ZIEGLER (Editor), *Approximation Theory and Applications*, Academic Press, New York, 1981, xi + 358 pp., $23\frac{1}{2}$ cm. Price \$26.00.

This volume contains 24 papers and a section on open problems presented at a workshop held at the Technion, Haifa, Israel, May 5–June 25, 1980.

3[75-06].—B. HUNT (Editor), *Numerical Methods in Applied Fluid Dynamics*, Academic Press, London, 1980, xviii + 651 pp., $23\frac{1}{2}$ cm. Price \$64.50.

This volume is based on the proceedings of the Conference on Numerical Methods in Applied Fluid Dynamics held at the University of Reading, January 4–6, 1978, organized by The Institute of Mathematics and its Applications. There are 19 contributed papers.

4[33A70].—A. P. PRUDNIKOV, YU. A. BRYCHKOV & O. I. MARICHEV, *Integrals and Series of Elementary Functions* (in Russian), Science, Moscow, 1981, 799 pp., 23 cm. Price 4 Rubles, 30 Kopecks.