computation in solving large-scale systems have been added to the chapter entitled Additional Computational Techniques.

The listing of available digital computer codes has been expanded. The original list referred to 10 machines of four manufacturers; the new list covers 28 machines made by 11 firms. One doubts the wisdom of including such a list in a basic text of this type, since it will be necessarily dated and incomplete. Furthermore, a reader with a problem will have a very limited number of machines available to him on a practical basis, and will query those installations for available codes, anyway.

The excellent, complete bibliography has been brought up to date.

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56[X].—J. C. BUTCHER, *Tables of Coefficients for Implicit Runge-Kutta Processes,* ms. of 9 sheets deposited in the UMT File.

In a paper (*J. Austral. Math. Soc.*, v. 3, 1963, pp. 185–201) Butcher generalized the idea of Runge-Kutta integration to include implicit as well as explicit problems. At the same time he cleared up a number of theoretical points related to the use of Runge-Kutta methods for systems of differential equations. In two subsequent papers (*Math. Comp.*, v. 18, 1964, pp. 50–64 and pp. 233–244) Butcher considered various aspects of implicit Runge-Kutta processes. In particular, he derived formulas for the weights and parameters of Runge-Kutta methods based on the abscissas of the Legendre-Gauss, Radau, and Lobatto quadrature formulas.

In the tables being reviewed here values of these weights and parameters are given for values of m, the number of terms in the Runge-Kutta sum, ranging from 3 to 10. The order of accuracy of the Runge-Kutta methods are $2m$ in the Legendre-Gauss case, $2m - 1$ in the Radau case and $2m - 2$ in the Lobatto case. All quantities in the tables are claimed to be in error by less than 10^{-20}.

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57[X].—IRVING ALLEN DODES & SAMUEL L. GREITZER, *Numerical Analysis,* Hayden Book Company, Inc., New York, 1964, 390 pp., 23 cm. Price $9.95.

This is an elementary book on numerical analysis based on a course that has been taught at the Bronx High School of Science since 1955. Table of Contents: Desk Calculator Arithmetic, Chapter 1; Iterative Techniques, Chapter 2; Statistical Analysis: Condensation, Chapter 3; Comparing Two Distributions for Similarity, Chapter 4; Comparison for Difference, Chapter 5; The Problem of Prediction, Chapter 6; Writing a Research Paper in the Sciences, Chapter 7; Solving an Equation by Iteration, Chapter 8; Determinants and Matrices, Chapter 9; Linear Programming, Chapter 10; Dimensional Analysis, Chapter 11; Getting About on the Earth, Chapter 12; Mathematics of Astronomy, Chapter 13; Empirical Formulas and Interpolation, Chapter 14.

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