These tables contain the weights w_k for a family of quadrature formulas of the following type:

$$\int_{-1}^{+1} f(x)dx = \sum_{k=1}^{n} w_k f(x_k) + R_n ,$$

where R_n denotes the error associated with using the sum in place of the integral. Different groups of weights are tabulated, one for each of ten sets of abscissas $x_1, x_2, \cdots, x_n$. These sets of abscissas are identical to those used in the following rules: trapezoidal, Simpson, Weddle, and Gauss 2, 3, 4, 5, 7, 10, 16 point rules. A bound for the quadrature error of the form

$$|R_n| \leq ||R_n|| \; ||f||$$

exists. The norm $||R_n||$ (cf. [1]) is also tabulated. The norm $||f||$ is defined by

$$||f|| = \iint_{\epsilon(a)} |f(z)|^2 dxdy$$

or by the same relation with $f(z)$ replaced by $f'(z)$, the first derivative of $f(z)$, depending on the choice of tabulated weights; the double integral is taken over an ellipse in the complex plane with semimajor axis a and semiminor axis $b = (a^2 - 1)^{1/2}$. Weights are tabulated for different a ranging from 1.0001 to 5.0. These weights have been determined for each a and each set of abscissas by the condition that the norm $||R_n||$ be minimized. It is therefore possible for these weights to yield a smaller quadrature error than that associated with the corresponding "ordinary" weights and same abscissas; comparison of the quadrature errors for some special cases is given in reference 1.

Eleven-digit numbers are tabulated; the calculations were carried out in double precision (16 digits). The results of $||R_n||$, using the standard weights, agreed with the results obtained by Lo, Lee and Sun [2], which gives an external check on the computations. An explanation of the headings—No Precision—and—Precision for Constants—can be found in [1].

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1. R. E. Barnhill & J. A. Wixom, "Quadratures with remainders of minimum norm. I," *Math. Comp.*, v. 21, 1967, pp. 66–75.
2. Y. T. Lo, S. W. Lee & B. Sun, *Math. Comp.*, v. 19, 1965, p. 133.

70[P, S, X, Z].—Berni Alder, Sidney Fernbach & Manuel Rotenberg, Editors, *Methods in Computational Physics: Advances in Research and Applications, Vol. 5: Nuclear Particle Kinematics*, Academic Press, New York, 1966, xi + 264 pp., 23 cm. Price $11.50.

The fifth volume of this admirable series describes some applications of computers and computing technology to high-energy physics experiments and to the reduction of data from such experiments.

The last three of the five chapters are devoted to methods (hardware and software) for reclaiming experimental information from photographic records. The first chapter describes an alternative recording method, using the discharges of a spark chamber to set ferrite cores which can then be read conventionally. The second chapter tells of some uses of small computers to acquire and analyze experimental data.

The contributions are as follows.

"Automatic Retrieval Spark Chambers," by J. Bounin, R. H. Miller, and M. J. Neumann.

"Computer-Based Data Analysis Systems," by Robert Clark and W. F. Miller.

"Programming for the PEPR System," by P. L. Bastien, T. L. Watts, R. K. Yamamoto, M. Alston, A. H. Rosenfeld, F. T. Solmitz, and H. D. Taft.

"A System for the Analysis of Bubble Chamber Film Based upon the Scanning and Measuring Projector (SMP)," Robert I. Hulsizer, John H. Munson, and James M. Snyder.

"A Software Approach to the Automatic Scanning of Digitized Bubble Chamber Photographs," Robert B. Marr and George Rabinowitz.

This volume is a valuable documentation of the efforts of the authors. Even those who do not know what PEPR means may find that it and other techniques described here may have other applications (Precision Encoder and Pattern Recognition).

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71[P, W, X].—William R. Smythe, Jr. & Lynwood A. Johnson, *Introduction to Linear Programming, with Applications*, Prentice-Hall, Englewood Cliffs, N. J., 1966, xiii + 219 pp. 24 cm. Price $7.50.

This is an extremely well written introduction to linear programming and its business applications. Of the many textbooks dealing with this subject which are now available, this is certainly one of the clearest expositions which this reviewer has read. Although it requires very little mathematical background on the part of the reader, it is remarkably thorough in its coverage and includes discussions of degeneracy, finding initial solutions and other similar areas sometimes omitted in a first course. It is highly recommended as a text for a one-semester course.

Since computers have played such a large part in the development of the applications of linear programming, it is a little disappointing to find the use of computers completely ignored in this text. Instead, the authors dwell on tableaus and detailed calculations with them. It would have been preferable to change to computer programs about halfway through the text and relieve the reader from the tedium of numerical calculations. This would also have opened the possibility of discussing much more realistic applications.

Chapter 1 contains an excellent geometrical introduction to linear programming in two dimensions. All of the possibilities such as an unbounded constraint set with a finite solution, infinitely many solutions, and the like are covered in a logical, coherent way.

Chapter 2 is an introduction to linear algebra including matrices, vectors, linear dependence, rank, etc. Indeed, the reader will have an algorithm for determining