19 [L, M, S, T].—JAMES A. BIERLEIN, "Gouy diffractometry in thermal diffusion," *The Journal of Chemical Physics*, v. 36, 1962, p. 2793–2802.

This paper contains (on p. 2797–2799) a 4D table of zeros and turning points of the incomplete Airy integral

$$\mathrm{Ai}(A, x) = \frac{1}{\pi} \int_0^A \cos\left(\frac{u^3}{3} + xu\right) du,$$

corresponding to $A = 0(\pm 0.25) \pm 5(\pm 0.5) \pm 6$. For each listed value of A, a total of from 28 to 33 interlacing zeros and turning points are tabulated.

Included also are corresponding data for the complete Airy integral, given by $\lim \mathrm{Ai}(A, x)$ as $A \to \infty$, and for the ratio $\lim \mathrm{Ai}(A, x)/A$, as $A \to 0$. The latter appears erroneously in the column heading as Ai/x.

The associated maximum and minimum values of these integrals are given to 5 or 6D.

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20 [L, P].—GUSTAV DOETSCH, *Guide to the Applications of Laplace Transforms*, D. Van Nostrand Co., Ltd., London, 1961, 255 p., 24 cm. Price \$9.75.

This book, by the well-known author of standard books on the Laplace Transformation, is intended to aid engineers in their use of this transformation. Theorems are carefully stated and the reader is referred for the proofs of the more involved of these to the author's book *Theorie und Anwendung der Laplace-Transformation*. Common pitfalls are indicated by a special warning sign printed in the margin. In addition to the usual treatment of linear differential equations with constant coefficients, a problem in automatic control involving a nonlinear differential equation is discussed. A chapter is devoted to difference equations and sampled data systems. A short account of the application of the Laplace Transformation to partial differential equations, treating the heat conduction equation and the equations of a twin conductor line with distributed constants, is given. The book closes with a chapter on the asymptotic behavior of functions and an appendix listing 256 Laplace transforms. The translation into English from the second edition of the original German book is well done and the printing is excellent. Translations of the first edition into Russian, French, and Japanese have previously appeared.

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21 [M, X].—V. I. KRYLOV, V. V. LUGIN & L. A. IANOVICH, *Tables for the Numerical Integration of Functions with Power Singularities*, Izdat. Akad. Nauk BSSR, Minsk, 1963 (Russian), 434 p. Price 1r. 45k.

This book contains tables of Gauss-Jacobi quadrature formulas of the form

$$\int_0^1 x^\beta (1 - x)^\alpha f(x)\, dx \simeq \sum_{i=1}^n A_i f(x_i),$$

which are exact whenever f is a polynomial of degree $\leqq 2n - 1$. Formulas are given for α, $\beta = -0.9(0.1)3.0$, $\beta \leqq \alpha$, and $n = 1\ (1)8$. The A_i and x_i are given to 8 significant figures. The x_i $(i = 1, \cdots, n)$ are the zeros of the corresponding Jacobi polynomial $P_n^{(\alpha,\beta)}(x)$ for the segment [0, 1]. The tables comprise 410 pages; there is a short introduction of 20 pages.

These are important tables, both for practical calculations and for the information they give concerning Jacobi polynomials; they will be useful, for example, for investigations of the distribution of the zeros of Jacobi polynomials. For use in numerical integration on a high-speed computer, however, it may be more convenient in many cases to compute a formula of this type before it is used. Each of these low-order formulas could be computed on, say, the IBM 7090 in a very few seconds.

For this reason, we believe it is more important to give tables of highly accurate formulas, which are more difficult and time consuming to compute. This reviewer is preparing such a set of tables; among the formulas already computed are the following Gaussian-type formulas:

$$\int_{-1}^{1} f(x)\,dx \simeq \sum_{i=1}^{n} A_i f(x_i), \qquad n = 2(1)64(4)96(8)168,256,384,512$$

$$\int_{-\infty}^{\infty} e^{-x^2} f(x)\,dx \simeq \sum_{i=1}^{n} A_i f(x_i) \qquad n = 2(1)64(4)96(8)136$$

$$\int_{0}^{\infty} e^{-x} f(x)\,dx \simeq \sum_{i=1}^{n} A_i f(x_i) \qquad n = 2(1)32(4)68$$

We have the A_i and x_i in these formulas correct to 30 significant figures.

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22 [P].—Frederick C. Grover, *Inductance Calculations Working Formulas and Tables*, Dover Publications Inc., New York, 1962, xiii + 286 p., 21 cm. Price $1.85.

This book first appeared in 1946. At that time it would have been an excellent tool for the practical engineer or designer of coils. Although the entire work is based upon one conceptually simple general definition, the author has heroically catalogued, in some 280 pages, an impressive number of special cases. He proceeds systematically through all types of coil shape, winding types, relative orientation, and other parameter situations. Formulae for such special cases are provided and adequate approximations and/or tables of special functions supplied. Today, the type of calculation in which this book would be of practical use would be carried out by a relatively small number of general-purpose inductance computing codes on a digital computer.

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Editor's note: See also *MTAC*, v. 3, 1948–1949, p. 521, RMT 674.