37 [L].—V. N. FADDEYEVA & N. M. TERENT'EV, *Tables of Values of the Function* $w(z) = e^{-z^2}\left(1 + \frac{2i}{\sqrt{\pi}} \int_0^z e^{t^2}\,dt\right)$, *for Complex Argument*, translated by D. G. FRY, Pergamon Press, New York, 1961, 280 p., 26 cm. Price \$15.00.

This is a translation from the Russian edition, which appeared in 1954. The present volume is essentially a tabulation of the error function in the complex plane, and, with $z = x + iy$, $w(z) = u(x, y) + iv(x, y)$, gives 6D values of u and v. In Table 1 the range is $0 \leqq x$ 3, $0 \leqq y \leqq 3$, with spacing in each variable of 0.02. In Table 2 the range is $3 \leqq x \leqq 5$, $0 \leqq y \leqq 3$, and $0 \leqq x \leqq 5$, $3 \leqq y \leqq 5$, with spacing in each variable of 0.1. A formula is presented so that the table is everywhere interpolable to an accuracy within two units in the last place. For interpolation about z_0, the formula uses the data at $z_0 \pm h$ and $z_0 \pm ih$, where h is the spacing. Let

$$2\bar{\Delta}_x f(x, y) = f(x + h, y) - f(x - h, y)$$
$$2\epsilon = (\bar{\Delta}_x u - \bar{\Delta}_y v) + i(\bar{\Delta}_y u + \bar{\Delta}_x v)$$
$$\Delta_x^2 f(x, y) = f(x + h, y) - 2f(x, h) + f(x - h, y)$$
$$\tilde{\Delta}_x w = \bar{\Delta}_x w - \epsilon.$$

The interpolation formula reads

$$w(z) \sim w(z_0) + h\tilde{\Delta}_x w + \tfrac{1}{2}h^2 \Delta_x^2 w,$$

and values of $\tilde{\Delta}_x u$, $\tilde{\Delta}_x v$, $\Delta_x^2 u$ and $\Delta_x^2 v$ are provided.

The foreword, written by V. A. Fok, enunciates applications of the tables to physical problems. Some properties of $w(z)$ are also given. The authors' introduction gives various representations of $w(z)$, including power series, asymptotic expansions, and continued fractions. The method of constructing and checking the table is discussed. To find values of $w(z)$ accurate to 6D outside the tabulated range, some approximations based on the continued fraction expansion are presented.

Other tables of the error function for complex argument have appeared since the original issue of the present tables. See, for example, *Math. Comp.*, v. 14, 1960, p. 83. In this table, as well as the one under review, z is in rectangular form. For tables of the error function with z in polar form, see *MTAC*, v. 7, 1953, p. 178 and *Math. Comp.*, v. 12, 1958, p. 304–305; v. 14, 1960, p. 84.

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38 [L].—I. E. KIREEVA & K. A. KARPOV, *Tablitsy Funktsiĭ Vebera*, (*Tables of Weber Functions*), Vol. 1, Vychislitel'nyi Tsentr, Akad. Nauk SSSR, Moscow, 1959, xxiv + 340 p., 27 cm. Price 37 rubles. [An English translation by Prasenjit Basu has been published in 1961 by Pergamon Press, New York. Price \$20.00].

Weber's equation

$$y'' - \left(a + \frac{z^2}{4}\right)y = 0 \tag{1}$$

is satisfied when $-a = p + \frac{1}{2}$ by Whittaker's function $D_p(z)$. If $y(a, z)$ is a solution,