TABLE ERRATA

444.—MILTON ABRAMOWITZ & IRENE A. STEGUN, Editors, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, National Bureau of Standards, Applied Mathematics Series, No. 55, U. S. Government Printing Office, Washington, D. C., 1964, and all known reprints.

On p. 561, in the right members of Formulas 15.4.8 and 15.4.9 the associated Legendre functions of the first kind, P_{b-1}^{b-a} and P_{b-1}^{a-b}, respectively, should be replaced by those of the second kind, Q_{b-1}^{b-a} and Q_{b-1}^{a-b}, of the respective given arguments.

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445.—A. ERDÉLYI, W. MAGNUS, F. OBERHETTINGER & F. G. TRICOMI, *Tables of Integral Transforms*, McGraw-Hill Book Co., New York, 1954.

On p. 227 of Volume II, in the right member of transform 14.3(26), *for* $I_\mu[b(y - \gamma)^{1/2}]$, *read* $I_\nu[b(y - \gamma)^{1/2}]$.

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On p. 290 of Volume II, the polynomials $H(ax)$ and $H(x)$ in formula 20 should be replaced by $He(ax)$ and $He(x)$, respectively, so that the integral will correctly read

$$\int_{-\infty}^{\infty} \exp\left(-\tfrac{1}{2}x^2\right) He_m(ax) He_n(x)\,dx\,.$$

Similarly, on p. 291, in formula 21 the integrand should read

$$\exp\left(-\tfrac{1}{2}x^2\right) He_{2m+n}(ax) He_n(x)\,.$$

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EDITORIAL NOTE: For notices of further errata in this set of tables, see *Math. Comp.*, v. 15, 1961, pp. 319–321, MTE **304**; v. 18, 1964, pp. 532–533, MTE **353**; v. 19, 1965, p. 361, MTE **367**; v. 20, 1966, p. 641, MTE **401**; v. 22, 1968, p. 473, MTE **422**, pp. 695–696, MTE **424**, p. 903, MTE **427**; v. 23, 1969, p. 468, MTE **436**.

446.—I. S. GRADSHTEYN & I. M. RYZHIK, *Table of Integrals, Series, and Products*, 4th edition, Academic Press, New York, 1965.

On p. 837, in formula 7.374.4 the exponent of 2 in the right member should be n instead of $-m + \frac{1}{2}$.

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EDITORIAL NOTE: For additional corrections see *Math. Comp.*, v. 22, 1968, pp. 903–907, MTE **428** and v. 23, 1969, pp. 468–469, MTE **437.**

447.—C. LANCZOS, *Applied Analysis*, Prentice-Hall, Englewood Cliffs, N. J., 1961.

On p. 514, the coefficient of x^{12} in the shifted Legendre polynomial $P_{13}^*(x)$ should read 67603900 instead of 97603900.

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EDITORIAL NOTE: For a previous announcement of an error in this book, see *Math. Comp.*, v. 17, 1963, p. 334, MTE **335.**

448.—T. N. L. PATTERSON, "The optimum addition of points to quadrature formulae," *Math. Comp.*, v. 22, 1968, pp. 847–856.

Recalculation to higher precision has revealed that a few of the early abscissas given in Table M14 (appearing in the microfiche supplement of this issue) are inaccurate beyond the 12th decimal place. An emended version of Table M14, giving abscissas and weights to 20S, appears in the microfiche supplement of this issue. The weights in the original table are consistent with the corresponding abscissas, so that in practice the difference in results produced by that table and the modified one will be insignificant.

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449.—MURRAY R. SPIEGEL, *Mathematical Handbook of Formulas and Tables*, McGraw-Hill Book Co., New York, 1968.

In 1.27, on p. 1 and in 5.14, on p. 12, the final digit in the 20S approximation to $\pi/180$ should be rounded correctly to an 8.

In formula 5.37, on p. 15, the denominator of the right member should read $\cot B \pm \cot A$.

In formula 7.14 on p. 24, the 10D value of ln10 should be rounded up to read 2.30258 50930.

In formula 19.29 on p. 108, the right member should read $3\pi^3\sqrt{2}/128$, in place of $3\pi^2\sqrt{2}/16$.

In problem 6(d) on p. 195, the logarithm of .009848 should read $7.9933 - 10$.

In problem 27(a) on p. 200, the last equation should read

$$\sinh (4.846) = 63.231 + \frac{6}{10}(.635) = 63.612 .$$

J. W. W.

Table M14 (cont'd)

ABSCISSAE	WEIGHTS
.38335 93241 98730 34692(0)	.25791 62697 60242 29388(-1)
.35740 38378 31532 15238(0)	.26115 67337 67060 97680(-1)
.33113 53932 57976 83309(0)	.26417 47339 50582 59931(-1)
.30457 64415 56714 04334(0)	.26696 62292 74503 59906(-1)
.27774 98220 21824 31507(0)	.26952 74966 76330 31963(-1)
.25067 87303 03483 17661(0)	.27185 51322 96247 91819(-1)
.22338 66864 28966 88163(0)	.27394 60526 39814 32516(-1)
.19589 75027 11100 15392(0)	.27579 74956 64818 73035(-1)
.16823 52515 52207 46498(0)	.27740 70217 82796 81994(-1)
.14042 42331 52560 17459(0)	.27877 25147 66137 01609(-1)
.11248 89431 33186 62575(0)	.27989 21825 52381 59704(-1)
.84454 04008 37108 83710(-1)	.28076 45579 38172 46607(-1)
.56344 31304 65927 89972(-1)	.28138 84991 56271 50636(-1)
.28184 64894 97456 94339(-1)	.28176 31903 30166 02131(-1)
.00000 00000 00000 00000(0)	.28188 81418 01923 58694(-1)

TABLE OF POLYNOMIALS
OF PERIOD e OVER GF(p)

by

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Notes on the table: For a given e only the irreducible factors of x^e-1 which are not factors of $x^{e'}-1$ for $e' < e$ are given, so what we have really is a table of the factorization of the cyclotomic polynomials $\Phi_e(x)$ of order e, deg $\Phi_e(x) = \phi(e)$. The complete factorization is obtained from the formula $x^e-1 = \prod_{d|e} \Phi_d(x)$. As is well-known, the irreducible factors of $\Phi_e(x)$ are all of the same degree $= \text{ord}_e(p)$, and in fact the shape of the complete factorization may be seen from the orbits used to calculate the R_i. In the example given above, the orbit structure shows that $x^{20}-1$ is a product of 4 irreducibles of degree 4, one of degree 2 and two of degree one. The orbits (1,3,9,7) and (11,13,19,17) exhaust the residues prime to 20, so that $\Phi_{20}(x)$ is a product of 2 irreducibles of degree 4.

If a polynomial $f(x) = a_0 + a_1x + \ldots + a_mx^m$ divides $\Phi_e(x)$, then so does its reciprocal polynomial $\tilde{f}(x) = a_m + a_{m-1}x + \ldots + a_0x^m$, and only one member of a reciprocal pair is listed. For those e which divide an integer of the form $p^t + 1$, each irreducible divisor of $\Phi_e(x)$ is self-reciprocal; this is indicated by a "P" (since the polynomials are then palindromes) after the entry e. When e is either an odd prime r (or twice an odd prime) and $\Phi_e(x) = x^{r-1} + x^{r-2} + \ldots + x + 1$ (or $x^{r-1} - x^{r-2} + \ldots - x + 1$) is irreducible, the entry "I" is given. Also, for some values of e=fg the irreducible divisors of $\Phi_e(x)$ may be obtained from those of period f by replacing x by x^g. This is indicated by the entry (f·g).

Finally, for p = 2 and 3 the entries are coded. Binary polynomials are given the customary octal representation; e.g., 7053 represents $x^{11} + x^{10} + x^9 + x^5 + x^3 + x + 1$. Ternary polynomials are coded in the base 9; e.g., 378 represents $x^5 + 2x^3 + x^2 + 2x + 2$. Polynomials for p=5 and p=7 are not coded; i.e., the coefficients are read directly from the table entries.