UNPUBLISHED MATHEMATICAL TABLES

122[**B**].—H. E. SALZER, *Table of* $n!/x^{n+1}$. Manuscript in possession of the author, NBSCL.

This table gives, to within a unit in the 9th place, the values of the function $n!/x^{n+1}$ for $n = 0(1)10$ and $x = .1(.1)10$. The table was computed with the aid of PETERS & STEIN's values of the powers of the reciprocals on p. 36–57 of the *Anhang* to J. PETERS, *Zehnstellige Logarithmentafel*, v. 1.

123[**F**].—A. GLODEN, *Factorization of* $2n^2 + 1$ *for* $n = 1(1)1000$. Typewritten manuscript of 11 leaves deposited in UMT FILE and Scientific Computing Service, London, and in possession of the author, 11 rue Jean Jaurès, Luxembourg.

A table extending to $n = 3000$ is contemplated by the author.

124[**F**].—A. GLODEN, *Tables of Quadratic Partitions* $p = a^2 + 3b^2$ *for* $100000 < p < 200000$. Typewritten manuscript of 18 leaves, deposited as in UMT **123**.

The argument p is a prime of the form $6m + 1$. The table gives a and b for each p with some 35 omissions which are promised in an addendum [for previous tables up to $p = 125000$ see RMT **883**].

125[**F**].—R. M. ROBINSON, *Tables of Integral Solutions of* $|y^2 - x^3| < x$ *for* $x < 10^6/9$. Tabulated from punched cards and deposited in the UMT FILE. Cards in possession of the author, University of California, Berkeley.

There are 5 tables. The first gives all solutions arranged according to x, of which there are 1242. Table II lists the 332 cases in which $y^2 = x^3$. Tables III is arranged in order of $|y^2 - x^3|$. Table IV is for $y^2 > x^3$ and Table V is for $y^2 < x^3$. Tables IV and V omit the trivial solutions $x = 4k^2 \pm 1$, $y = 8k^3 \pm 3k$, which are starred in Tables I and III.

126[**L**].—G. FLAKE & Y. L. LUKE, *Tables of the Function* $(1 - uZ)^{-1/u}$. Lithographed manuscript, 4 leaves, deposited in UMT FILE and available from Midwest Research Institute, 4049 Pennsylvania Ave., Kansas City, Mo.

The table gives 8D values of this function for

$$z = .7(.01)1.25, \qquad u = .09(.01).12.$$

127[**L**].—C. P. GREEN, J. H. LESLIE & D. W. RAYNOLDS, *Extensive Tables of the Exponential Integral.* A thesis, Chemical Engineering Dept., Univ. of Tennessee. Knoxville, 1951, xxv + 111 leaves.

The main table is of $-\text{Ei}(-x)$ for $x = 15(.0001)16$. There are also tables of $\text{Ei}(x)$ and $-\text{Ei}(-x)$ for $x = 15(1)50$ and interpolation coefficients as introduced by COULSON & DUNCANSON [*Phil. Mag.*, s. 7, v. 33, 1942, p. 745–760].

128[L].—G. JONES & D. UFFORD, *Table of the Functions* $C(P) = K_1(P)/[K_1(P) + K_0(P)]$ *and of* $PC'(P)$. Lithographed manuscript, 4 leaves, available as in UMT **126**.

K_1 and K_0 are the usual Bessel functions. The tables give $C(P)$ and $-PC'(P)$ to 7D for $P = 0(.002).1(.01).3(.02)1(.1)2(.5)10(10)100$, and also for $P = .35(.05).95$.

129[L].—Y. L. LUKE & D. UFFORD, *Tables of the Function* $\bar{K}_0(x) = \int_0^x K_0(t)\,dt$. Lithographed manuscript, 3 leaves, deposited as in UMT **126**.

The table gives 8D values of $\bar{K}_0(x)$ and of the auxiliary functions $A_1(x)$ and $A_2(x)$ defined by

$$K_0(x) = (\ln 2 - \gamma - \ln x)A_1(x) + A_2(x)$$

for $x = 0(.01).5(.05)1$.

130[L].—UNIVERSITY OF TORONTO COMPUTATION CENTRE, *Tables of Spherical Bessel Functions for Semi-imaginary Argument.* Photo copy, 2 leaves deposited in UMT FILE.

The tables give 8S values of the real and imaginary parts, absolute values and arguments of

$$(2x/\pi)^{-\frac{1}{2}}e^{-\pi i/4}J_{n+\frac{1}{2}}(xe^{\pi i/2})$$
$$(2x/\pi)^{-\frac{1}{2}}e^{-\pi i/4}Y_{n+\frac{1}{2}}(xe^{\pi i/2})$$

for $n = 0, 1, 2, 3$; $x = 0(1)10$.

AUTOMATIC COMPUTING MACHINERY

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Notes on Numerical Analysis—5

Table-Making for Large Arguments. The Exponential Integral

The evaluation of a function defined by a definite integral, for the complete range of argument $-\infty$ to $+\infty$, is usually performed in several stages. For small and moderate values of the argument x the integral is evaluated by means of an ascending series in powers of x, or perhaps by numerical quadrature. For very large values of x, numerical values are obtained by means of an asymptotic series.

The exponential integral, for example, defined by the equations

$$\mathrm{Ei}(x) = \int_{-\infty}^{x} t^{-1}e^{t}\,dt$$

(1)

$$-\mathrm{Ei}(-x) = \int_{x}^{\infty} t^{-1}e^{-t}\,dt$$