as k approaches unity (25 of the 71 values of k exceed 0.99), and no interpolation facilities are provided in either table because in the design problem k can usually be chosen to coincide with a tabular value. The methods of computation on DEUCE are described in the introductory text.

A. F.

11[L].—CHIH-BING LING, *Tables of Values of σ_{2s} Relating to Weierstrass' Elliptic Function*, Institute of Mathematics, Academia Sinica, Taiwan, China, 1964. Ms. of 7 typewritten sheets deposited in UMT File.

These manuscript tables of coefficients σ_{2s} to 16 S, for $s = 2(1)25$, which appear in the expansion of Weierstrassian elliptic functions when $\omega = ai$ and when $\omega = \frac{1}{2} + ci$, are described in a paper of the same title by Professor Ling in this issue, where an abridgment to $s \leqq 10$ appears.

J. W. W.

12[L].—T. Y. NA & A. G. HANSEN, *Tabulation of the Hermite Function with Imaginary Arguments, $H_n(ix)$*, ms. of 2 typewritten pages + 4 computer sheets of tables, deposited in the UMT File.

In a recent similarity analysis of the flow near an oscillating plate, the authors required numerical values of the Hermite function with an imaginary argument. Herein they present tables of $i^{-1} H_m(ix)$, $m = 1(2)15$, and of $H_m(ix)$, $m = 2(2)16$, both for $x = 0(0.1)5$, to 8 S in floating-point form, as calculated on the IBM 7090 system at the University of Michigan. Previous tabulations of this function have been limited to real arguments.

J. W. W.

13[L].—ROBERT SPIRA, *Calculation of the Riemann Zeta Function*, Memo 64-1-3,16, Special Research in Numerical Analysis, Duke University, Durham, North Carolina, 16 March 1964, 12 microcards (24 sides) deposited in UMT File.

This is a reproduction on microcards of the main table of 940 pages of values of the Riemann zeta function (together with thirteen introductory tables) described previously in this journal. (See v. 18, 1964, p. 519, UMT **78.**)

The author has informed the editors that a limited number of copies of these cards are available upon request to Duke University.

J. W. W.

14[L, M].—ATHENA HARVEY, *Tables of $\int_0^x e^{-bt} I_0(t)$*, four typewritten pages deposited in UMT File.

In a brief explanatory introduction the author states that this integral appears in the analytical expression of the integrated reflecting power of X-rays for absorbing perfect crystals [1].

The tabular data were computed on an IBM 1620 and are listed to 6 S for $b = 0(0.1)1.0$ and $x = 0(0.1)10.0$. Accuracy to within 2 units in the last place is claimed.

Reference is also made to the treatise by Luke [2], which includes a discussion of this integral, and gives an equivalent expression in closed form when $b = 1$.

J. W. W.

1. NORIO KATO, "Integrated intensities of the diffracted and transmitted X-rays due to ideally perfect crystals (Laue case)," *J. Phys. Soc. Japan*, v. 10, 1955, p. 46–55.
2. YUDELL L. LUKE, *Integrals of Bessel Functions*, McGraw-Hill Book Co., 1962, p. 122 and Chapter X.

15[L, M].—N. SKOBLIÂ, *Tables for the Numerical Inversion of Laplace Transforms*, Academy of Sciences of USSR, Moscow, 1964, 44 p., 22 cm. Paperback. Price 13 kopecks.

Consider the Laplace transform pair (which we assume exists)

$$(1) \qquad p^{-s}g(p) = \int_0^\infty e^{-pt}f(t)\,dt, \qquad f(t) = (2\pi i)^{-1}\int_{c-i\infty}^{c+i\infty} p^{-s}e^{pt}g(p)\,dp$$

where $c > 0$ and c lies to the right of all singularities of $g(p)$. Suppose that $g(p)$ is known and can be represented by a polynomial in $1/p$. Then an approximation formula for $f(t)$ is readily constructed from the second formula in (1). Now it may be shown that

$$(2) \qquad \int_{c-i\infty}^{c+i\infty} e^p p^{-s} P_n(p^{-1}) P_m(p^{-1})\,dp = \delta_{mn}\,h_n\,, \qquad h_n = \frac{(-1)^n n!}{(2n-1+s)\Gamma(n-1+s)}$$

where δ_{mn} is the Kronecker delta, and in hypergeometric notation,

$$(3) \qquad \begin{aligned} P_n(x) &= {}_2F_0(-n, n+s-1; x) \\ &= (2-2n-s)_n\, x^n\, {}_1F\left(-n; 2-2n-s; \frac{1}{x}\right). \end{aligned}$$

This shows that numerous properties of $P_n(x)$ follow from known results on confluent hypergeometric functions. In view of (2), we have the approximation

$$(4) \qquad f(t) \sim (2\pi i)^{-1} \sum_{k=1}^{n} A_{k,n}\, g(p_k)$$

where

$$(5) \qquad P_n(p_k^{-1}) = 0, \qquad k = 1, 2, \cdots, n,$$

and the weights, $A_{k,n}$ are the Christoffel numbers. Thus, the approximation is exact if indeed $g(p)$ is a polynomial in $1/p$ of degree $(2n-1)$. A convenient formula for the weights is

$$(6) \qquad A_{k,n} = \sum_{m=0}^{n-1} \{P_m(p_n^{-1})\}^2/h_m\,.$$

The pamphlet gives some properties of $P_n(x)$, though (3) and (6) are not among them. The following are tabulated to 7S: p_k, $A_{k,n}$ for $k = 1(1)n$, $n = 1(1)10$, and $s = 0.1(0.1)3.0$.