REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the indexing system printed in Volume 28, Number 128, October 1974, pages 1191–1194.

13[7.55].—HERBERT E. SALZER & NORMAN LEVINE, *Tables of* $2^{-r+1}{}_rC_{(r-k)/2}$, ms of 4 pp. + 65 tabular pp. (unnumbered) 8½″ × 14″, deposited in the UMT file.

A polynomial $P_n(x) \equiv c_0 + c_1x + \cdots + c_nx^n$ is expressible as a Chebyshev series $\frac{1}{2}a_0T_0(x) + a_1T_1(x) + \cdots + a_nT_n(x)$ or $\frac{1}{2}a_0^*T_0^*(x) + a_1^*T_1^*(x) + \cdots + a_n^*T_n^*(x)$, where $T_k(x) = \cos(k \arccos x)$, $T_k^*(x) = T_k(2x - 1)$, $a_k = \Sigma_{r=k}^n c_rd_{r,k}$, and $a_k^* = \Sigma_{r=k}^n c_rd_{2r,2k}$, $k = 0(1)n$. Here $d_{r,k} = 2^{-r+1}{}_rC_{(r-k)/2}$ for $r - k$ even, and $d_{r,k} = 0$ for $r - k$ odd.

The first of the two tables in this manuscript gives $d_{2r,2k}$ to 35S, in floating-point form, for $r = k(1)50$, $k = 0(1)50$; the second gives $d_{r,k}$ to the same precision for $r = k(2)99$, $k = 1(2)99$.

In the four-page introduction the senior author includes a description of a more efficient method [1] for the calculation of the coefficients a_k and a_k^*, which he discovered after the computation of these tables and which he attributes originally to Hamming [2], [3].

J. W. W.

1. H. E. SALZER, "A recurrence scheme for converting from one orthogonal expansion into another," *Comm. ACM*, v. 16, 1973, pp. 705–707.

2. R. W. HAMMING, *Numerical Methods for Scientists and Engineers*, McGraw-Hill, New York, 1962, pp. 255–257.

3. R. W. HAMMING, *Introduction to Applied Numerical Analysis*, McGraw-Hill, New York, 1971, pp. 305–306.

14[9].—J. S. DEVITT, *Some Tables for Aliquot Sequences*, Res. Report CORR 77-41, Faculty of Math., Univ. of Waterloo, Waterloo, Ont., Canada, Sept. 1977, 55 pp., 27.5 cm. Copy deposited in the UMT file.

The *aliquot n-sequence* is $n_0 = n$, $n_{i+1} = \sigma(n_i) - n_i$ where $\sigma(n)$ is the sum of divisors function. Such sequences are *terminating* if they contain a term 1, *periodic* if they contain a perfect number, amicable pair or other cycle, and *unbounded* otherwise. The existence of unbounded sequences is an open question; sequences not known to be terminating or periodic are *incomplete* (at b, where the last calculated term exceeds b). An m-sequence is *tributary* to an n-sequence if $m > n$ and the sequences have a common term greater than all previous terms of either sequence. A sequence is called *main* if it is not *known* to be tributary. The main n-sequences with $n < 1000$ which are incomplete (at 10^{30}) were mostly calculated by D. H. Lehmer [author, reviewer and J. L. Selfridge, Proc. 6th Manitoba Conf. Numerical Math., 1976, pp. 177–204]