

These symbols are invariant under the 144 products of separate permutations of the K , alone and the separate permutations of the J , alone. The symmetries of the $6j$ -symbols are made use of in the organization of the tables. In the present (revised) edition of the tables a wider group of symmetries is exploited than in the earlier edition.

In the tables the $6j$ -symbols are classified in terms of a set of six ordered parameters, and the tables are arranged in descending "speedometer" order of these parameters. Rules for determining the values of these parameters from given j_1, \dots, k_3 are included.

The square of the value of the $6j$ -symbol is printed in the table, together with its correct sign. In addition the entries are written as rational fractions in terms of their prime factors. Thus the fraction $-4/5\sqrt{21}$ is written as $-2 \cdot 2 \cdot 2/3 \cdot 5 \cdot 5 \cdot 7$. A composite member, all of whose factors are greater than 103 is printed as if it were a prime.

The tables were duplicated from stencils cut directly from the output tape of a Ferranti Pegasus Computer. The program used in the computer was essentially the same as that used for the earlier version of the tables. It is stated that, "It seems reasonably sure that these tables are as reliable as, and more comprehensive than, the first set of tables of the $6j$ -symbol."

A. H. T.

4[H, M].—H. J. GAWLIK, *Zeros of Legendre Polynomials of orders 2-64 and weight coefficients of Gauss quadrature formulae*, A. R. D. E. (Armament Research and Development Establishment) Memorandum (B) 77/58, Fort Halstead, Kent, December 1958, 25 p.

The Gauss quadrature formula is $\int_{-1}^1 f(x) dx = \sum_{r=1}^n A_r f(a_r)$ with A_r ; a_r chosen so that the equality is valid whenever $f(x)$ is any polynomial of degree $2n - 1$ or less. The quantities a_r are the zeros of the Legendre polynomial $P_n(x)$, while

$$A_r = \frac{1}{P_n'(a_r)} \int_{-1}^1 \frac{P_n(x)}{x - a_r} dx.$$

The memorandum here reviewed gives 20-decimal values of a_r and A_r for all zeros a_r of each polynomial $P_n(x)$, for $n = 2(1)64$, and is by far the most extensive and accurate of such tables available.

The most extensive of the previously published tables is that of Lowan, Davids, and Levinson [1], which gives a similar table to 15 decimals for $n = 2(1)16$. This table has been reproduced several times, in whole or in part [2]. It has been supplemented by a table by Davis and Rabinowitz [3], which gives 20-decimal values for $n = 2, 4, 8, 16, 20, 24, 32, 40, 48$. Discrepancies between Davis & Rabinowitz and Gawlik amount to only a unit in the 20th decimal in several places, with the probability that Gawlik is the more accurate; both tables would thus appear to be reliable.

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1. AMER. MATH. SOC., *Bull.*, v. 48, 1942, p. 739-743; v. 49, 1943, p. 939 (errata).
2. See, for example, NBS Applied Mathematics Series, No. 37, *Tables of Functions and of Zeros of Functions*, 1954.
3. NBS, *Jn. of Research*, v. 56, 1956, p. 35-37.