A table of weights and abscissas (to sixteen significant figures) for the $2n$-point Gaussian integration formula

$$\int_{-\pi}^{\pi} f(x) \sin x \, dx = \sum_{j=1}^{n} [w_j f(x_j) - w_j f(-x_j)], \qquad 0 < x_j < \pi,$$

is given for $n = 1(1)9$. The abscissas x_j and weights w_j are given by

$$x_j = \sqrt{u_j}, \qquad w_j = b_j/x_j, \qquad j = 1, 2, \ldots, n,$$

where u_j and b_j are the abscissas and weights of the n-point Gaussian quadrature formula

$$\int_0^{\pi^2} \frac{1}{2} \sin \sqrt{u}\, g(u)\, du = \sum_{j=1}^{n} b_j g(u_j).$$

The author chose the method of Anderson [1], to compute the u_j and b_j. The calculations were performed on the IBM 1620 of the Computing Center of the University of Leuven.

E. I.

1. D. G. Anderson, "Gaussian quadrature formulae for $\int_0^1 -\ln(x) f(x)\, dx$," *Math. Comp.*, v. 19, 1965, pp. 477–481.

25[2.10, 7].—David M. Bishop, *Evaluation of Certain Integrals of Reduced Modified Bessel Functions of the Second Kind*, ms. of 6 typewritten pages (undated) deposited in the UMT file.

The main table in this manuscript consists of 8S floating-point values of the integral

$$I_n(\mu) = \int_0^{\infty} [x^{\mu} K_{\mu}(x)]^4 x^n \, dx$$

for $n = 0(1)4$ and $\mu = 0.1(0.1)5$. The numerical integration was accomplished by means of Gauss-Laguerre quadrature, using 32 points.

When μ is half an odd integer (and n is a nonnegative integer) the value of $I_n(\mu)$ is expressible as a rational multiple of π^2; accordingly, the author presents in a supplementary table these rational coefficients (with their decimal equivalents to 8S) for $n = 0(1)4$ and $\mu = 0.5(1)2.5$. From a comparison of corresponding entries in the two tables the author concludes that the main table is accurate to at least 7S. (This reviewer noted one instance of accuracy to 6S, corresponding to $n = 0$, $\mu = 1.5$.)

The author states that this integral appears in certain atomic and molecular calculations where the electronic wave function is chosen as a combination of Bessel functions.

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26[2.30, 2.45, 8, 9, 12].—Donald E. Knuth, *The Art of Computer Programming*, Vol. II: *Seminumerical Algorithms*, Addison-Wesley Publishing Co., Reading, Mass., 1969, xi + 624 pp., 25 cm. Price $18.50.

In this impressive sequel to the first volume [1] of his projected seven-volume series on the art of computer programming the author considers those aspects of