1. GENE H. GOLUB & JOHN H. WELSCH, "Calculation of Gauss quadrature rules," *Math. Comp.*, v. 23, 1969, pp. 221–230.
2. I. M. LONGMAN, "Tables for the rapid and accurate numerical evaluation of certain infinite integrals involving Bessel functions," *MTAC*, v. 11, 1957, pp. 166–180.

45 [2.10,7].—É. N. GLONTI, *Tablit͡sy Korneĭ i Kvadraturnykh Koeffit͡sientov Polinomov Iakobi (Tables of the Roots and Quadrature Coefficients of Jacobi Polynomials)*, Computing Center, Acad. Sci. USSR, Moscow, 1971, xiv + 236 pp., 27 cm. Price 2.14 rubles.

This is an extensive tabulation of the zeros $x_k^{(n)}$ and Christoffel numbers $A_k^{(n)}$ of the Jacobi polynomials $P_n(p, q, z)$ orthogonal on the interval (0, 1) with weight function $x^{q-1}(1 - x)^{p-q}$. The parameters of p, q range through the values $q = 0.1(0.1)1.0$, $p = (2q - 1)(0.1)(q + 1)$, while $n = 2(1)15$. The precision is 15S in the zeros and 15D in the coefficients. The only published table that is comparable in scope is that of Krylov et al. [1], which covers a somewhat larger region of the parameters, but is restricted to $n \leqq 8$ and a precision of only 8S.

An additional table of quadrature errors

$$e_j^{(n)} = \left| \int_0^1 x^{q-1}(1 - x)^{p-q} x^{2n+j}\, dx - \sum_{k=1}^{n} A_k^{(n)} [x_k^{(n)}]^{2n+j} \right| ,$$

for $0 \leqq j \leqq 16$ and $2 \leqq n \leqq 15$, appears in the introduction. These errors grow slightly as q increases for fixed p and sharply increase with p for fixed q. Consequently, only the errors for $q = 1$, $p = 2$ and $q = 0.1$, $p = -0.8$ are tabulated, representing the largest and smallest errors, respectively, in the tabular range.

The introduction also includes a collection of formal relationships satisfied by Jacobi polynomials, comments on the computation and use of the tables, and information facilitating interpolation.

W. G.

1. V. I. KRYLOV, V. V. LUGIN & L. A. I͡ANOVICH, *Tablit͡sy dli͡a Chislennogo Integrirovanii͡a Funkt͡siĭ so Stepennymi Osobennosti͡ami*, Izdat. Akad. Nauk BSSR, Minsk, 1963.

46 [2.35, 6, 13.35].—JAMES W. DANIEL, *The Approximate Minimization of Functionals*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1971, xi + 228 pp., 24 cm. Price $9.50 (cloth).

This book presents the basic theory relevant to problems of approximately minimizing functionals and an analysis of some of the numerical methods available for their solution. It is an informative, useful, and very readable book. The author's exposition is clear, his prose is smooth, and the text is attractively printed. Exercises, almost all of a theoretical nature, are interspersed throughout the text, and references to nearly 200 books and papers, most of them quite recent, are well documented. Although practical methods are discussed, theoretical considerations dominate. There is little discussion of the comparative merits of these methods, although some very rough guidelines are given in an epilogue.

In Chapter 1, "Variational Problems in an Abstract Setting", basic functional analysis relevant to minimization problems is reviewed, various notions of convexity