The Classical Moment Problem, by N.I. Akhiezer. Translated from the 1961 Russian edition by N. Kemmer. Hafner Publishing Company, New York, 1965. 253 pages. $10.00 (U.S.)

Inspiringly written and beautifully translated, this is a book for the pure mathematician who likes the Russian style at its forthright best. The author examines the moment problem, both classically and as related to the more modern theory of extensions of Hermitian operators in Hilbert spaces. The corresponding trigonometric problems are also discussed.

Although this is truly a textbook, and assumes no prior knowledge of the moment problem, it is not intended for beginning graduate students. The exercises are nontrivial addenda to the text, with plenty of hints. The reader is expected to know some good solid analysis, for example the "well-known procedure of orthogonalization", the completeness theorem for Hermite polynomials, the Phragmen-Lindelof theorem, and much more, and to have a rather good feeling for spectral theory (unbounded operators).

Despite this, many allowances are made for a bad memory: for example, if you have forgotten what it means for an operator to have a simple spectrum, you get the definition, and if you have forgotten the finite-dimensional motivation for that definition, you get that, too. This lack of snobbishness increases the pleasure of reading the book. The claim made on the dust cover, that the book is also of interest to workers in statistics and computer science, may possibly be justified.

Chapter headings (condensed): Infinite Jacobi Matrices and their Associated Polynomials, the Power Moment Problem, Function Theoretic Methods, Inclusion of the Problem in the Spectral Theory, Trigonometric and Continuous Analogues.

Harry F. Davis, University of Waterloo

Method of Moments in Applied Mathematics, by Yu. V. Vorobyev. Translated from the Russian by Bernard Seckler. Gordon and Breach, New York, 1965. 168 pages.

This book presents a class of methods for finding approximate eigenvalues of a linear operator and for solving a broad range of linear problems. These methods are distinguished by the rapidity of convergence of the successive approximations. The author solves a diversity of interesting, well-chosen, nontrivial, and quite explicit problems, to obtain numerical answers (right out to the n^{th} decimal place).

The book is clearly written and remarkably self-contained, although it is not really a textbook. It can be recommended to every graduate student in applied mathematics and contains some things of interest to pure mathematicians interested in Hilbert space. The main prerequisites are a familiarity with Hilbert space (including unbounded operators) and

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thorough grounding in advanced calculus.

Chapter headings (condensed): Approximation of Bounded Linear Operators, Completely Continuous Operators, Self-adjoint Operators, Speeding Up the Convergence, Solution of Time-dependent Problems, Generalization of the Method of Moments, Solution of Integral and Differential Equations.

Harry F. Davis, University of Waterloo

Gaussian Quadrature Formulas, by A.H Stroud and D. Secrest. Prentice-Hall, Inc., Englewood Cliffs, N.J., 1966. 374 pages.

This book gives tables of nodes and weights for fourteen types of Gaussian quadrature formulas. The main tables are N-point formulas for Gauss-Legendre quadrature for N = 2(1) 64(4) 96(8) 168, 256, 384, 512, Gauss-Hermite quadrature for N = 2(1) 64(4) 96(8) 136, and Gauss-Laguerre quadrature for N = 2(1) 32(4) 68. Also tables are given for eleven other types of Gaussian formulas. In all tables nodes and weights are given to thirty significant figures. Tables of error coefficients are given for each of the fourteen tables.

In addition to the above-mentioned tables the book contains five introductory chapters with a total of approximately one hundred pages which give a summary of the theory of Gaussian quadrature, a discussion of the computational procedure including some sample Fortran programs, examples of the use of the tables, a survey of other tables, and a bibliography.

It may be of interest to note that the majority of the formulas were computed on the Control Data 1604 at the University of Wisconsin. The arithmetic was done by means of a general-purpose floating-point program which allowed triple precision, used in the computation of most of the tables, of about thirty-nine significant decimals, and quadruple precision, used in some instances, of about fifty-four significant decimals.

K.W. Smillie, Edmonton

Contributions to Functional Analysis, dedicated to G. Köthe. Springer Verlag, Berlin, Heidelberg and New York, 1966. viii + 532 pages. Price DM 35.-

This volume contains 44 research papers in functional analysis which were published also in Mathematische Annalen, Vol. 162, pages 83-367 and Vol. 163, pages 1-247, q.v. The papers cover a wide area of functional analysis, and most of them are of general interest. The publishers have attempted to make them available at "as low as possible" a price. For reviews of the individual articles we refer the reader to forthcoming issues of Mathematical Reviews.

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