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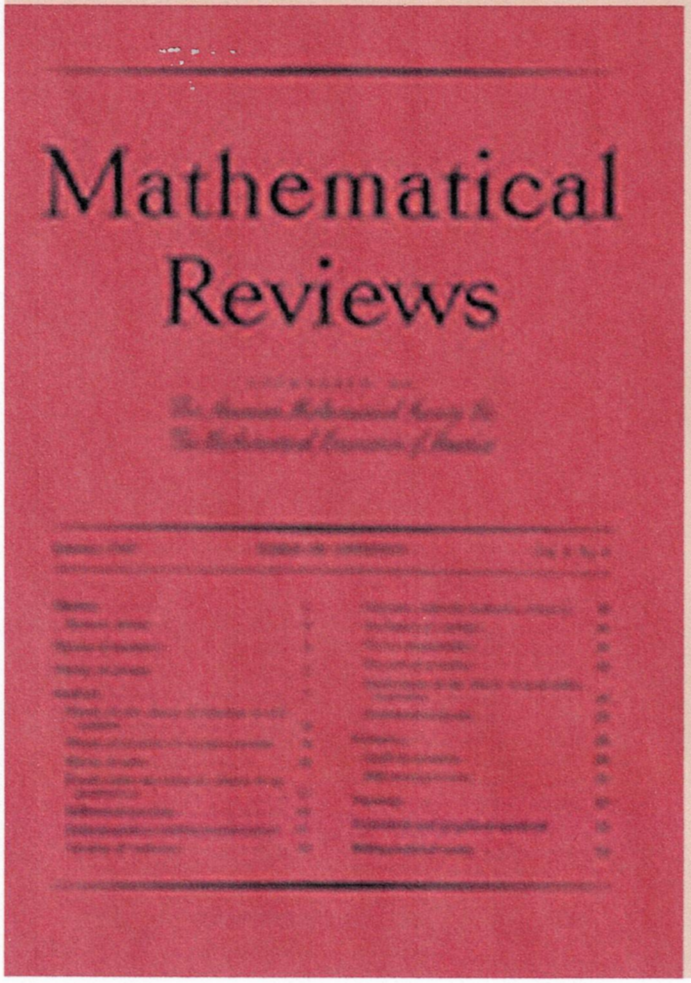
Mathematical
Reviews


ZENTRALBLATT FÜR
MATHEMATIK
UND IHRE GRENZGEBIETE
SPRINGER-VERLAG
BERLIN/GÖTTINGEN/HEIDELBERG
1964

Mathematics

THE UNIVERSITY OF TEXAS AT AUSTIN
THE GENERAL LIBRARIES

SELECTED REFERENCE SOURCES NO. 52
JOHN H. SANDY, COMPILER

August, 1980

Mathematics is concerned with the logical study of shape, quantity, and dependence. The two main areas of study are pure and applied mathematics; the former is the intrinsic study of mathematical structures, while the latter involves the study of physical phenomena. The principal fields of inquiry are algebra, analysis, and geometry.

This bibliography contains reference sources of interest to both student and professional mathematicians. Titles which emphasize applied mathematics will also appeal to scientists and engineers. All materials listed in this bibliography are located in the Physics-Mathematics-Astronomy Library (RLM 4.200). For additional locations, note the locational symbols appended to the call numbers.

HANDBOOKS AND TABLES

QA
47
A34
1965
PMA
UGL
ENGIN

Abramowitz, Milton and Stegun, Irene A., eds. Handbook of Mathematical Functions, with Formulas, Graphs, and Mathematical Tables. New York: Dover Publications, 1965.

Originally published as the National Bureau of Standards Applied Mathematics Series, no. 55, this handbook is "designed to provide scientific investigators with a comprehensive and self-contained summary of the mathematical functions that arise in physical and engineering problems." Includes many exotic topics such as confluent hypergeometric functions, Jacobian elliptic functions, Fresnel integrals, etc. Each chapter has a brief bibliography. A scholarly book for advanced studies.

QA
351
B2
PMA
ENGIN

Bateman Manuscript Project. Higher Transcendental Functions. New York: McGraw-Hill Co., 1954. 3 vols.

A major compilation of special functions, particularly in the area of applied mathematics. Contents include the gamma, hypergeometric, Legendre, Bessel, and elliptic functions. The discussion is highly theoretical and is well documented with references for further reading.

QA
351
B22
PMA
ENGIN

Bateman Manuscript Project. Tables of Integral Transforms. New York: McGraw-Hill Co., 1954. 2 vols.

A companion and sequel to the work described above. Contents include Fourier, Laplace, and Mellin transforms. An appendix provides notations and definitions of higher transcendental functions.

QA
276.25
B48
1968
PMA
SCIENCE

Beyer, William H., ed. CRC Handbook of Tables for Probability and Statistics. 2nd ed. Cleveland, Ohio: The Chemical Rubber Co., 1968.

An extensive collection of standard statistical tables. Major topics are probability and statistics; normal distribution; binomial, hypergeometric, and negative binomial distributions; student's t-distribution; chi-square distribution; and F-distribution. Also has miscellaneous mathematical tables to aid in calculations.

QA
47
M315
25th
1978
PMA

Beyer, William H., ed. CRC Standard Mathematical Tables. 25th ed. West Palm Beach, Fla.: CRC Press, Inc., 1978.

Tables are compiled and arranged to meet the needs of students, mathematicians, and scientists. Explanatory material can be especially helpful for students.

QA
47
H321
5th
1978
PMA
MAIN
ENGIN

Beyer, William H., ed. CRC Handbook of Mathematical Sciences. 5th ed. West Palm Beach, Fla.: CRC Press, 1978.

A standard reference work for the mathematical sciences. Though not as detailed as some other handbooks, this book will satisfy most needs of undergraduate and beginning graduate students in the sciences and engineering. Lists mathematical symbols and abbreviations.

QA
295
H25
PMA
UGL

Hansen, Eldon R. A Table of Series and Products. Englewood Cliffs, N.J.: Prentice-Hall, 1975.

This book contains compilations of series expansions of many of the special functions, plus a section on numerical power series. The author aims "to write series in such a form and list them in such a manner that a given series can easily be located in the list." Extensive introductory material explains the textual presentation.

QA
40
K598
1968
PMA
ENGIN

Korn, Granio A. and Korn, Theresa M. Mathematical Handbook for Scientists and Engineers: Definitions, Theorems, and Formulas for Reference and Review. 2nd ed. New York: McGraw-Hill, 1968.

Presents the various topics of applied mathematics, without considerable theory. The subject matter is presented in three levels: formulas and definitions are described in tables and boxed groups; the main text, in large print, gives a concise review of each topic; and detailed discussions and advanced topics are described in small print. Suitable for undergraduate and graduate studies.

QA
55
J3
1960
PMA
ENGIN
UGL

Losch, Friedrich. Tables of Higher Functions. 6th ed. New York: McGraw-Hill, 1969.

Contains tables of standard special functions (Bessel, Legendre, Mathieu, etc.). This text is recommended for its theoretical discussions and the numerous well executed graphs and altitude charts. The text is in both German and English. Includes a bibliography.

QA
55
M418
PMA

Luke, Yudell, L. Mathematical Functions and Their Approximations. New York: Academic Press, 1975.

This is an updated supplement to the Handbook of Mathematical Functions by Abramowitz. It covers new information on special functions which has appeared since 1960. For a full treatment of the tables and descriptive properties of mathematical functions, a reader may need to consult the earlier work as not all detail is repeated in the supplement.

QA
41
M253
1966a
PMA

Magnus, Wilhelm. Formulas and Theorems for the Special Functions of Mathematical Physics. New York: Springer-Verlag, 1966.

The emphasis here is on definition and analytical representation of various special functions used in mathematical physics. The discussion is brief and scholarly. Intended for advanced students and professionals.

QA
55
R943
1965
PMA
ENGIN

Ryzhik, I.M. and Gradshteyn, I.S. Tables of Integrals, Series, and Products. New York: Academic Press, 1965.

Covers elementary functions, indefinite integrals of elementary functions, definite integrals of elementary functions, indefinite integrals of special functions, and special functions. The introduction is a brief discussion of the "Use of the Tables." The unique value of this volume is its well organized collection of integrals.

QA
41
S75
PMA

Spiegel, Murray R. Mathematical Handbook of Formulas and Tables. New York: McGraw-Hill, 1968.

This title in the familiar Schaum series lists functions and integrals, as well as tables of the more common functions in elementary applied mathematics. Appropriate for the beginning undergraduate student.

DICTIONARIES AND ENCYCLOPEDIAS

QA
5
I5
PMA
ENGIN
UGL

Freiberger, W.F., ed. International Dictionary of Applied Mathematics. Princeton, N.J.: Van Nostrand, 1960.

This book "defines the terms and describes the methods in the applications of mathematics to thirty-one fields of physical science and engineering." The presentation is somewhat technical, requiring some background in mathematics. Has foreign language indexes in French, German, and Russian.

QA
5
H42
PMA

Herland, Leo J. Dictionary of Mathematical Sciences. 2nd ed. New York: Ungar, 1965. 2 vols.

A bilingual dictionary: German-English and English-German. Includes all but the more specialized terms of mathematics. Contains applied mathematics terms in mathematical logic, statistics and commercial arithmetic.

QA
5
J32
PMA
REF
MAIN
UGL

James, Robert C. and James, Glenn, eds. Mathematics Dictionary. 4th ed. New York: Van Nostrand, 1977.

This dictionary is designed primarily for mathematics students. Provides comprehensive treatment of pure and applied mathematics as well as classical and modern mathematics. Contains numerous fundamental theorems (e.g. Hahn-Banach, Krein-Milman, Cayley), definitions of basic concepts, brief biographical data on important mathematicians, including many who are living. Has indexes in French, German, Russian, and Spanish. Lists units of measurement and mathematical symbols.

QA
40
V18
1977
PMA
ENGIN
UGL

Gellert, Walter, ed. VNR Concise Encyclopedia of Mathematics. New York: Van Nostrand Reinhold, 1977.

This encyclopedia has three sections: elementary mathematics, steps toward higher mathematics, and brief reports on selected topics. The final pages consist of numerous plates on topics such as mathematical instruments, old measures, and famous mathematicians. Suitable for undergraduates in mathematics and science.

QA
5
R8
PMA

Lohwater, A. J. Russian-English Dictionary of the Mathematical Sciences. Providence, R.I.: The American Mathematical Society, 1961.

Designed for translation from Russian to English. This work begins with a guide to Russian grammar which aids in the translation of variant forms of words found in the technical literature. Valuable for any level of mathematics.

QA
5
N513
PMA

Shokichi, Iyanaga and Yukiyosi, Kawada, eds. Encyclopedic Dictionary of Mathematics. Cambridge, Mass.: The MIT Press, 1977. 2 vols.

This in-depth, scholarly work treats topics such as calculus of variations, Gelfand's representation of commutative Banach algebras, and electromagnetic theory. It has information about all the fields of advanced mathematical research. A very detailed subject index.

BIOGRAPHIES AND DIRECTORIES

QA
28
B4
PMA

Bell, Eric Temple. The Men of Mathematics. New York: Simon and Schuster, 1937.

This is an account of thirty-four mathematicians who have had a major influence on the development of modern mathematics. The entries are arranged chronologically.

QA
1
A523
1979-80
PMA

Combined Membership List. Providence, R.I.: American Mathematical Society, 1979.

This is the current membership list of the American Mathematical Society (AMS), the Mathematical Association of America (MAA), and the Society for Industrial and Applied Mathematics (SIAM). Each entry provides name, rank, address, and particular membership. Includes a detailed geographical listing and a listing of academic and institutional members with address and telephone number.

QA
30
W6
1974
PMA
REF

World Directory of Mathematicians. 5th ed. Uppsala, Sweden: Almqvist and Wiksell, 1974.

Entries consist of name and address. There is no apparent standard for inclusion in this directory. Published under the auspices of the International Mathematical Union.

ABSTRACTS AND INDEXES

QA
47
F55
1962
PMA
ENGIN

Fletcher, Alan. An Index to Mathematical Tables. 2nd ed. Reading, Mass.: Addison-Wesley, 1962. 2 vols.

The first volume is a very thorough "Index According to Functions." Covers tables published from the sixteenth century to 1961. The entries provide a brief discussion of the methods of calculation used in the original sources. Short author references in volume one refer to the full bibliographic data in volume two.

QA
1
M76
PMA

Mathematical Reviews. Providence, R.I.: American Mathematical Society, 1940-

This is the most important review journal in mathematics; it is international in scope and covers the full range of pure and applied mathematics. Abstracts are provided for journal articles and books. The entries are arranged according to the American Mathematical Society Subject Classification Scheme. Has annual author and subject indexes as well as cumulative indexes covering the periods 1940-59, 1960-64, and 1965-72.

QA
1
A373
PMA

Referativnyi Zhurnal. Matematika. Moscow: Kombinat VINITI, 1953-

A major source of reference to Russian journals and books in pure and applied mathematics. Each monthly edition contains three sectional indexes. Except for a general statement of contents in English, the entire journal is in Russian.

016.31
In82
PMA

Statistical Theory and Method Abstracts. Edinburgh: International Statistical Institute, 1959-

Includes abstracts of papers on the theory of probability, statistics and immediately related subjects. The abstracts are organized in a classified arrangement, described at the beginning of each issue. Index supplements are issued for each volume. Published quarterly.

Z 6653 Z56 PMA

Zentralblatt fur Mathematik und Ihre Grenzgebiete. Berlin: Springer-Verlag, 1931-

An international abstracting and indexing journal for the whole field of mathematics. Abstracts, chiefly in English, are arranged according to the Subject Classification Scheme of the American Mathematical Society. An outline of the classification is printed at the end of volume 381. Every tenth volume is a cumulative index of the preceding nine volumes. A 50-volume cumulative index begins with volume 350. The list of journals covered is included in the 10-volume index, beginning with volume 110.

GUIDES TO THE LITERATURE

QA 36 D521 PMA REF MAIN

Dick, Elie M. Current Information Sources in Mathematics. Littleton, Colo.: Libraries Unlimited, Inc., 1973.

"The aim of the bibliographic guide is to identify the major works in all branches of mathematics, and to describe their contents." The monographs listed are of potential interest to both researchers and students. This work is easy to browse, as entries are arranged according to the major subject areas of mathematics.

016.51 P369h 1969 PMA

Pemberton, John E. How to Find Out in Mathematics; A Guide to Sources of Information. 2nd ed. Oxford: Pergamon Press, 1969.

This is a beginner's guide to mathematical literature. Among the topics discussed are career guides, mathematical dictionaries and encyclopedias, mathematical periodicals and abstracts, mathematical tables, and methods of locating useful textbooks. Special chapters are devoted to statistics, operations research, and the mathematical literature of Russia. The text is organized to facilitate reading from cover-to-cover.

TREATISES

QA 37.2 B413 PMA

Behnke, H., ed. Fundamentals of Mathematics. Cambridge, Mass.: MIT Press, 1974. 3 vols.

These three volumes cover foundations of mathematics, the real number system and algebra, and analysis. A translation of the German treatise Grundzuge der Mathematik.

COMPUTER-BASED INFORMATION SERVICES

Bibliographic documentation for selected mathematics journals is stored in a computer file (database) called SCISEARCH. Major journals indexed by SCISEARCH are: Bulletin of the American Mathematical Society, Communications in Algebra, Proceedings of the American Mathematical Society, Canadian Journal of Mathematics, Journal of Combinatorial Theory, Journal of Functional Analysis, Mathematische Zeitschrift, and SIAM Journal of Mathematical Analysis. SCISEARCH can be accessed

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