

IN TOUGH WITH NEW HORIZONS

Another achievement of IBM Applied Scientists:
computer program for distillation tower design

Making hard realities out of ideas is a task of the IBM Applied Scientist. Through creative applications of data processing, he is changing the worlds of science, industry and business.

One team of Applied Scientists worked closely with IBM customers to develop a new, far more efficient method of designing distillation towers. They created a program for computer analysis of towers with any number of feed and side streams.

Other teams are investigating computer techniques for mathematical physics, machine tool programming, taxonomy, advanced forecasting methods, and information retrieval. The variety of projects is unlimited.

You too may make a vital contribution to this challenging profession. There are openings in many cities for men and women with advanced degrees in engineering, mathematics, or a physical science; or with a degree in one of these areas plus a Master's degree in business administration or experience in computer programming.

For a confidential interview at your convenience, contact any IBM Branch Office or one of these Regional Managers of Applied Science:

L. M. Fulton

R. W. De Sio

L. C. Hubbard

IBM Corporation

IBM Corporation

IBM Corporation

425 Park Avenue

618 S. Michigan Ave.

3424 Wilshire Blvd.

New York 22, N. Y.

Chicago 5, Ill.

Los Angeles 5, Cal.



IBM®

DATA PROCESSING DIVISION

WANTED: Periodicals:

Mathematics, Physics, etc.

HIGH PRICES PAID

Abrahams Magazine Service
Dept. M 56 E. 13th St., N. Y. 3

MEMOIR 33
COHOMOLOGY THEORY
AND ALGEBRAIC
CORRESPONDENCES

by
ERNST SNAPPER

96 pp. \$1.90

25% discount to members

AMERICAN MATHEMATICAL SOCIETY
190 Hope Street
Providence 6, Rhode Island

ILLINOIS
JOURNAL
OF
MATHEMATICS

A quarterly journal of basic research in pure and applied mathematics published by the University of Illinois, Urbana.

edited by

REINHOLD BAER • J. L. DOOB
A. H. TAUB • GEORGE W. WHITEHEAD
PAUL T. BATEMAN • OSCAR ZARISKI

The subscription price is \$9.00 a volume (four numbers); this is reduced to \$5.00 for individual members of the American Mathematical Society. Subscriptions should be sent to the University of Illinois Press, Urbana, Illinois.

Neuerscheinung

Differentialgleichungen für Ingenieure

Eine Einführung

Von Prof. Dr. Dr. h. c. L. COLLATZ, Hamburg

(Leitfäden der angewandten Mathematik und Mechanik, Band 1. Unter Mitwirkung von Prof. Dr. F. K. G. Odqvist, Stockholm, und Prof. Dr. E. Stiefel, Zürich, herausgegeben von Prof. Dr. H. Görtler, Freiburg)

2., neubearbeitete und erweiterte Auflage. 197 Seiten mit 115 Bildern. DIN A5. 1960. Ln. DM 21,60.

Aus dem Inhalt: Gewöhnliche Differentialgleichungen erster Ordnung sowie höherer Ordnung / Rand-, insbesondere Eigenwertaufgaben / Spezielle Differentialgleichungen : Kugelfunktionen—Besselfunktionen—Reihenentwicklung, hypergeometrische Funktion / Ergänzungen : Lineare partielle Differentialgleichungen mit konstanten Koeffizienten—Randwertaufgabe der Potentialtheorie—Näherungsverfahren zur Lösung gewöhnlicher Differentialgleichungen.

Das Buch behandelt vorwiegend die gewöhnlichen Differentialgleichungen, doch werden auch kurze Einblicke in das Gebiet der partiellen anhand typischer Beispiele gegeben. Die Darstellung betont—bei mathematischer Exaktheit—stets die anschauliche Seite und die Beziehungen zu den Anwendungsgebieten. Das Buch will Ingenieuren und Physikern, zudem auch Mathematikern, die sich mit Problemen der Anwendungen befassen, bei ihrer Arbeit von Nutzen sein.

B. G. TEUBNER VERLAGSGESELLSCHAFT · STUTTGART

Mathematical Methods in the Social Sciences, 1959

PROCEEDINGS OF THE FIRST STANFORD SYMPOSIUM. *Edited by Kenneth J. Arrow, Samuel Karlin, and Patrick Suppes.* Papers presented at Stanford in June, 1959, in econometrics, operations research, and mathematical learning theory. *Stanford Mathematical Studies in the Social Sciences, IV.* \$8.50

Contributions to Probability and Statistics

Edited by Ingram Olkin, Sudhish G. Ghurye, Wassily Hoeffding, William Madow, Henry B. Mann. Forty papers in the fields of statistics, probability theory, economics, and biology. *Stanford Studies in Mathematics and Statistics, II.* \$6.50

Order from your bookstore, please

STANFORD UNIVERSITY PRESS

MATH LEARNING and TEACHING AIDS!

• We are headquarters for Math Learning and Teaching Aids. Our catalog, with over 1/2 million circulation—contains an 8-page Math section to promote outside interest and activity in the subject. Watch our ads for new Math items. We will appreciate your recommending us to pupils for learning aids, books, etc.

D-STIX CONSTRUCTION KITS



You can increase interest in geometry and teach it better by using D-Stix. Solid geometry is fun for pupils when you show them actual visualizations of regular polyhedrons, geometric figures from triangles and cubes through such multiple sided figures as icosahedrons, dodecahedrons, etc.

Stock No. 70,209-DL (230 pcs)\$3.00 ppd.
 Stock No. 70,210-DL (370 pcs)\$5.00 ppd.
 Stock No. 70,211-DL (452 pcs)\$7.00 ppd.



RADIAN PROTRACTOR

Eliminates the need to learn long tables of equivalences or buy expensive books of tables for translating degrees to radian.

Stock No. 50,265-DL—Pkg. of 25 ...\$ 3.75 Postpaid
 Stock No. 50,266-DL—Pkg. of 100 ...\$12.50 Postpaid

TRIG AND CALCULUS CARDS



Used to clinch the learning of trig identities or calculus formulas. Each deck contains 62 playing cards, plus instructions, and is used to play a game similar to Solitaire. Our decks include Differential Calculus, Integral Calculus, Applied Calculus, and Fundamental Identities from Trig.

Stock No. 40,310-DL—Applied Calculus\$1.25 Postpaid
 Stock No. 40,311-DL—Fundamental Identities 1.25 Postpaid
 Stock No. 40,312-DL—Integral Calculus 1.25 Postpaid
 Stock No. 40,313-DL—Differential Calculus 1.25 Postpaid
 Stock No. 40,314-DL—Set of all four.. 4.00 Postpaid

Write for **FREE CATALOG—DL**

128 Pages! Over 1000 Bargains!

America's No. 1 source of supply for low-cost Math Teaching Aids, for experimenters, hobbyists. Complete line of Astronomical Telescope parts and assembled Telescopes. Also huge selection of lenses, prisms, war glasses, plus optical instruments, parts and accessories. Telescopes, microscopes, binoculars. Request Catalog—"DL"



Order by Stock No.—Send Check or M.O.—Money-back Guarantee

EDMUND SCIENTIFIC CO. Barrington, New Jersey



BOOKS

Mathematical Methods for Digital Computers

Edited by Anthony Ralston and Herbert S. Wilf, both of the University of Illinois. Clearly shows the interrelation between analysis of the problem, computer capabilities and limitations, and coding procedures. 1960. 293 pages. \$9.00.

Statistical Theory of Communication

By Y. W. Lee, Massachusetts Institute of Technology. This book is based on the author's own experience gained through years of research work and teaching, and on the work of Norbert Wiener. 1960. Approx. 504 pages. Prob. \$18.00.

Word and Object

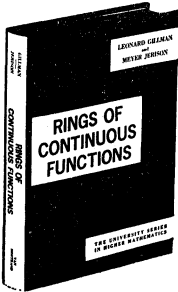
By Willard Van Orman Quine, Harvard University. This treatise discusses the nature of language and its relation to the real world. A Technology Press Book, M.I.T. 1960. 294 pages. \$5.50.

The Analysis of Variance

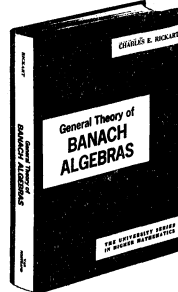
By Henry Scheffé, University of California, Berkeley. One of the Wiley Publications in Statistics, Walter A. Shewhart and S. S. Wilks, Editors. 1959. 477 pages. \$14.00.

Send for examination copies.

JOHN WILEY & SONS, Inc. 440 Park Ave. South, New York 16



**2 New Books
in the
University Series
in Higher
Mathematics**



*The First Systematic
Account of*

RINGS OF CONTINUOUS FUNCTIONS

by **LEONARD GILLMAN** and
MEYER JERISON, both *Associate
Professors of Mathematics, Purdue
University.*

July 1960 288 pp. about \$6.95

*A Comprehensive
Treatise on the*

GENERAL THEORY OF BANACH ALGEBRAS

by **CHARLES E. RICKART**,
*Professor and Chairman of the
Mathematics Department, Yale
University.*

June 1960 360 pp. about \$9.00

D. VAN NOSTRAND COMPANY, INC.
120 Alexander Street, Princeton, N.J.

Journals Published by the American Mathematical Society

Bulletin of the American Mathematical Society

This journal is the official organ of the Society. It reports official acts of the Society and the details of its meetings. It contains some of the officially invited addresses presented before the Society, reviews of advanced mathematical books, research problems and a department of research announcements.

The subscription price is \$7.00 per annual volume of six numbers.

Research Problems and Invited Addresses offered for publication should be sent to WALTER RUDIN, Department of Mathematics, University of Wisconsin, Madison, Wisconsin; Book Reviews to J. C. OXTOBY, Bryn Mawr College, Bryn Mawr, Pennsylvania. Research Announcements offered for publication should be sent to some member of the Council of the Society, and communicated by him to E. E. MOISE, Department of Mathematics, University of Michigan, Ann Arbor, Michigan. All other communications to the editors should be sent to the Managing Editor, E. E. MOISE.

The members of the Council for 1960 are: E. F. Beckenbach, E. G. Begle, Lipman Bers, R. H. Bing, R. P. Boas, Salomon Bochner, H. F. Bohnenblust, R. H. Bruck, R. C. Buck, M. M. Day, J. A. Dieudonné, J. L. Doob, Arthur Erdélyi, G. E. Forsythe, P. R. Garabedian, A. M. Gleason, J. W. Green, P. R. Halmos, Edwin Hewitt, G. P. Hochschild, G. B. Huff, Nathan Jacobson, Irving Kaplansky, L. H. Loomis, E. J. McShane, W. S. Massey, A. E. Meder, Jr., E. E. Moise, Deane Montgomery, J. C. Oxtoby, R. S. Pierce, Everett Pitcher, G. de B. Robinson, Alex Rosenberg, P. C. Rosenbloom, Walter Rudin, Hans Samelson, I. J. Schoenberg, I. E. Segal, I. M. Singer, E. H. Spanier, A. W. Tucker, S. M. Ulam, J. V. Wehausen, J. W. T. Youngs, Oscar Zariski, Leo Zippin.

Proceedings of the American Mathematical Society

This journal is devoted entirely to research in pure and applied mathematics and is devoted principally to the publication of original papers of moderate length.

The subscription price is \$11.00 per annual volume of six numbers.

Papers in algebra and number theory should be sent to ALEX ROSENBERG, Lunt Building, Northwestern University, Evanston, Illinois; in probability, real variables, logic and foundations to P. R. HALMOS, Eckhart Hall, University of Chicago, Chicago 37, Illinois; in abstract analysis to either P. R. HALMOS or ALEX ROSENBERG; in geometry and topology to HANS SAMELSON, Department of Mathematics, University of Michigan, Ann Arbor, Michigan; in other branches of analysis, applied mathematics, and all other fields to R. P. BOAS, Lunt Building, Northwestern University, Evanston, Illinois. All other communications to the editors should be addressed to the Managing Editor, P. R. HALMOS.

Transactions of the American Mathematical Society

This journal is devoted entirely to research in pure and applied mathematics, and includes in general longer papers than the PROCEEDINGS.

Four volumes of three numbers each will be published in 1960. The subscription price is \$8.00 per volume.

Papers in analysis, applied mathematics and probability should be sent to LIPMAN BERS, Institute of Mathematical Sciences, New York University, New York 3, New York; in topology to W. S. MASSEY, Department of Mathematics, Brown University, Providence, Rhode Island; in algebra, number theory, and logic to G. P. HOCHSCHILD, Department of Mathematics, University of California, Berkeley 4, California; in geometry and abstract analysis to I. M. SINGER, Institute of Mathematical Sciences, New York University, New York 3, New York. All other communications to the editors should be addressed to the Managing Editor, LIPMAN BERS.

Journals Published by the American Mathematical Society

Soviet Mathematics—Doklady

This journal contains the entire pure mathematics section of the DOKLADY AKADEMII NAUK SSR in translation. It appears six times a year, each bimonthly issue corresponding to one volume of the Soviet DOKLADY. (The DOKLADY AKADEMII NAUK SSR is issued three times a month, six issues constituting a volume.)

Rates per annual volume are as follows: Domestic subscriptions, \$17.50; foreign subscriptions, \$20.00. Single issues are \$5.00.

Mathematical Reviews

This journal contains abstracts and reviews of the current mathematical literature of the world. It is sponsored by thirteen mathematical organizations, located both in the United States and abroad.

MATHEMATICAL REVIEWS is published monthly, excepting July. The subscription price is \$50.00 per annual volume of eleven numbers.

Notices of the American Mathematical Society

This journal announces the programs of the meetings of the Society. It carries the abstracts of all contributed papers presented at the meetings of the Society and publishes news items of interest to mathematical scientists.

The subscription price is \$7.00 per annual volume of 7 numbers. A single copy is \$2.00.

All communications should be addressed to the Editor G. L. WALKER, 190 Hope Street, Providence 6, Rhode Island. News items and insertions for each issue must be in the hands of the editor on or before the deadline for the abstracts for the papers to be presented in the meetings announced in that issue. These deadlines are published regularly on the back of the title page.

Memoirs of the American Mathematical Society

This is a series of paperbound research tracts which are of the same general character as papers published in the TRANSACTIONS. An issue contains either a single monograph or a group of cognate papers. Published at irregular intervals. The latest numbers in this series are:

- | | |
|--|--------|
| 29. Edward Halpern, <i>Twisted polynomial hyperalgebras</i> . 61 pp. 1958 | \$1.50 |
| 30. L. Auslander and L. Markus, <i>Flat Lorentz 3-manifolds</i> . 60 pp. 1959 | 2.00 |
| 31. W. S. Loud, <i>Periodic solutions of $x'' + cx' + g(x) = ef(t)$</i> . 58 pp. 1959 | 2.00 |
| 32. R. S. Pierce, <i>Translation lattices</i> . 66 pp. 1959 | 1.70 |
| 33. Ernst Snapper, <i>Cohomology theory and algebraic correspondences</i> . 96 pp. 1959. | 1.90 |
| 34. E. M. Zaustinsky, <i>Spaces with non-symmetric distance</i> . 91 pp. 1959. | 2.00 |
| 35. Richard Bellman and K. L. Cooke, <i>Asymptotic behavior of solutions of differential-difference equations</i> . 91 pp. 1959. | 2.00 |
| 36. Richard S. Palais, <i>The classification of G-spaces</i> . 72 pp. 1960. | 1.65 |