Mathematics books

JUNG

Sixth Form (A level) College (certificates & diplomas) University (first year)

Complementary to the Scottish Mathematics Group's Modern Mathematics for Schools, these inter-related books employ modern terminology and symbology.

Algebra and Number Systems Analytic Geometry and Vectors Calculus Statistics and Probability

(books on Numerical Analysis, Fortran and Mechanics in preparation)

Send for leaflets and/or inspection copies to

Chambers 11 Thistle Street Edinburgh EH2 1DG Blackie Bishopbriggs Glasgow G64 2NZ

BELL



Mechanics

P. GANT

Completely revised and reset in a larger format, this new edition uses SI units throughout. Liberally illustrated with numerous examples and exercises the book is intended to provide a first course in Mechanics as well as being suitable for these studying the subject at Additional Mathematics or at Lower Sixth form level.

224 pages £1.30

Computer Programming in the Classroom

B. J. JACKSON

The volume uses the City and Guilds Mnemonic Code which is widely used in secondary schools and colleges for introductory work. Each chapter contains numerous exercises for the student and the book is illustrated throughout with Flow Charts and Programs.

		128 pages	£1.30
Elementary Analysis A. DAKIN and R. I. PORTER	3rd Edition	390 pages	95 p
Further Elementary Analysis R. I. PORTER	4th Edition	382 pages	£1.50
Further Mathematics R. I. PORTER	2nd Edition	424 pages	£1.60
A School Course in Vectors R. I. PORTER		128 pages	95 p
Vectors and their Application to Geom A. J. FRANCIS	etry and 2nd Edition	I Mecha 148 pages	nics 80p
Advanced Level Mechanics A. J. FRANCIS		424 pages	£2.95
Elementary Mechanics			
D. A. QUADLING and A. R. D. RAMSAY	2nd Edition Volume 1 Volume 2	300 pages 376 pages	£1.50 £1.90

For inspection copies and catalogues please write to:

G. Bell & Sons Ltd., Portugal St., London WC2A 211L



A Unified Course

L K Turner

Clearly defined aims combined with a coherent and unified structure have made it possible to produce the work of all the new single-subject Mathematics Advanced level syllabus in two books for the first time. Traditional syllabuses can be supplemented with more coordinate geometry, more emphasis is laid on the understanding of the principles of mechanics, and space is given to introduce a wider variety of topics in probability, statistics and pure mathematics. The chapters in both books are clearly divided into sections allowing maximum flexibility and there are many examples, graded exercises and miscellaneous problems to suit the abilities of most pupils.

Book 1 has been especially designed to lead on from O-level mathematics whether "traditional" or "modern" and the content has been chosen with regard for the usefulness of the topics in other A-level courses.

Contents

Prologue - function and their graphs - power functions and logarithmic functions - rates of change differentiation - areas, integration - trigonometric functions - sequences and series - probability and statistics appendix, parabolas, ellipses and hyperbolas. £1.75

Book 2

Contents

Introduction to vectors and mechanics - further calculus - complex numbers - further vectors and mechanics - probability distributions and further statistics - matrices, determinants and linear algebra - algebraic structures. epilogue. Probably £1.75

Also available Pure Mathematics, A First Course, by J C Backhouse and S P T Houldsworth 95p and new cased edition £1.50 and A Second Course by J K Backhouse, S P T Houldsworth and B E D Cooper £1.25.

For inspection copies of any of these books please write to Christine Walsh, W213G, Longman Group Limited, Longman House, Burnt Mill, Harlow, Essex CM20 2JE.



Mathematics Illustrated Dictionary

Facts, Figures & People including the 'New' Mathematics

Jeanne Bendick & Marcia Levin with Leonard Simon

Completely revised and up-to-date edition, this now contains a new section on computer technology.

Over 2,000 terms are alphabetically listed, defined, explained and often illustrated. There are many cross-references; charts to identify symbols and abbreviations; tables of logarithms; square roots and equivalent weights, and many useful formulae. In addition there are thumbnail sketches of key mathematicians and their contributions.

232 pp., over 300 illustrations, £1.95

Kaye & Ward 21 New Street, London EC2M 4NT

INTERNATIONAL TEXTBOOK CO. LTD.

Functional Analysis Edward W. Packel

Distinctive characteristics of this book are its brevity and the ordering of the subject matter, which provide sufficient unity and direction to make it genuinely suitable as a text for a short course in functional analysis.

7002 0250 1 9" × 6" 176pp cased £4.50

Computational Techniques: Analog, Digital & Hybrid Systems Allen Durling

This unified introduction to computation and simulation techniques emphasizes the relationships among the analog computer, the digital computer, digital simulation languages, straightforward digital computation, and hybrid computers.

7002 2454 8 9" × 6" 400pp cased £6.50

Elementary Number Theory Allan M. Kirch

This book introduces the reader to elementary number theory and to some of the computer applications that the subject suggests.

7002 2456 4 9" × 6" 336pp cased £6.50

Inspection copies of these books are available to lecturers in a position to recommend textbooks for adoption in their colleges. Please write to: Intertext Publishing Ltd., Kingswood House, Heath & Reach, Leighton Buzzard, Beds. LU7 OAZ

Tel: Heath & Reach 581

Middle and Secondary schools

Nuffield

Mathematic*s*

ers. Mur

Providing a link between Primary assignments and Secondary course books, two forms of material

Modules

Each Module (five to a set) consists of pupils' cards and a teachers' booklet devoted to a single topic.

Set 1: Decimals 1; Speed and Gradient 1; Angles, Courses and Bearings; Symmetry; Number Patterns 1. (Available now.)

Set 2: Similarity 1; Decimals 2; Number Patterns 2; Area; Coordinates.

Sets 3 and 4 in preparation.

Can be bought singly or in sets.

Problems

These Problems provide opportunities for the children not just to 'do' a problem but to expand and generalize it—and they provide a useful means of revision of topics which may not have been completely mastered in Primary School. Three sets of cards each with accompanying teachers' book. In order of difficulty—Green Set, Purple Set and Red Set.

Plus three new Teachers' Guides this season—Graphs Leading to Algebra 3, Checking up 3 and Guide to the Guides.

Inspection copies and further information from Chambers or Murray

Chambers 11 Thistle Street Edinburgh EH2 1DG Murray 50 Albemarle Street London WIX 4BD

CENTRE FOR SCIENCE EDUCATION Bridges Place, London, SW6 4HR CHELSEA COLLEGE

(University of London)

Master's Degree Course in Science or Mathematics Education

Applications are invited from qualified teachers of science or mathematics for a two-year part-time or one-year full-time course leading to the M.Ed. degree of the University of London. The course commences in October 1974.

Research Degrees in Science or Mathematics Education

Applications are invited from teachers of science or mathematics for research, either full-time or part-time, in a wide variety of topics leading to the M.Phil. and Ph.D. degrees of the University of London.

Further details from the Secretary (Higher Degree Courses) at the Centre.

In-Service Courses

A full programme of In-Service training courses is offered to serving teachers. Further details from the Secretary (In-Service Courses) at the Centre (JBE/A)

CROYDON TECHNICAL COLLEGE

DIPLOMA IN MATHEMATICS OF THE MATHEMATICAL ASSOCIATION

A one or two-year part-time course is offered to commence in September 1974 leading to the award of this diploma.

Endorsement subjects are also available as an evening study; subject to approval). These are Advanced Statistics, Numerical Methods and Advanced Applied Mathematics.

Teachers or intending teachers in secondary schools are invited to write for full particulars to the Head of Department of Science, Croydon Technical College, Fairfield, Croydon, CR9 1DX The Mathematical Association's magazine devoted to mathematics teaching at the school level (with particular emphasis on the 7-16 age range).



Many articles of direct relevance to classroom practice and problems. Regular features include:

ABC of mathematicians Apparatus & book reviews Glossary of mathematics Puzzles, pastimes & problems Educational technology Assessment workshop

Available to members of the Mathematical Association through subscription (in appropriate classes of membership). Non-members can obtain copies from the Subscription Manager, Longman Group Ltd., Journals division, 43–45 Annandale Street, Edinburgh EH7 4AT.

A back number?

We can probably supply it – either individual issues or long runs of the

Mathematical Gazette

The Executive Secretary will be pleased to send details of availability and prices on request; also a list of Association publications currently available.

The Mathematical Association, 150 Friar Street, Reading RG1 1HE



An extra binder free with each bulk order for 10 binders.

viii

THE MATHEMATICAL ASSOCIATION

The fundamental aim of the Mathematical Association is to promote good methods of mathematical teaching. Each member receives four issues of the *Mathematical Gazette* and/or six issues of *Mathematics in School* (according to the class of membership chosen), together with any Newsletters and Reports published during the year. Intending members should ask the Executive Secretary for information and application forms.

The address of the Association and of the Honorary Treasurer and Secretaries is 150 Friar Street, Reading RG1 1HE. Telephone Reading 581 389.

Change of address should be notified to the Membership Secretary at the Reading office. If copies of the Association's periodicals fail to reach a member for lack of such notification, duplicate copies can be supplied only at the published price. If change of address is the result of a change of appointment, the Membership Secretary will be glad to be informed.

Subscriptions should be paid to the Hon. Treasurer.

The Library is housed in the University Library, Leicester.

Correspondence for the Problem Bureau should be addressed to Mr. R. H. Cobb, 9 The Lees, Malvern, Worcs. WR14 3HT.

THE MATHEMATICAL GAZETTE

Editor:

Mr. D. A. Quadling, 12 Archway Court, Barton Road, Cambridge CB3 9LW.

Assistant Editors:

Dr. J. A. Anderson, Department of Mathematics, The University, Nottingham NG7 2RD.

Dr. J. Howlett, Atlas Computer Laboratory, Chilton, Berks.

Mr. J. W. Hersee, 76 Pembroke Road, Bristol BS8 3EG.

Material for publication, and books for review, should be sent to Mr. Quadling. Authors will be notified as soon as possible whether or not their contributions can be accepted; if an *immediate* acknowledgment is required, they should send an addressed, reply-paid postcard with their contribution.

Each assistant editor will be concerned with a particular aspect of the contents of the *Gazette*: Dr. Howlett with applied mathematics, Dr. Anderson with pure mathematics and Mr. Hersee with mathematics at school level.

Business and advertising correspondence should be addressed to the Executive Secretary at the Reading office of the Association.

© 1974 THE MATHEMATICAL ASSOCIATION

CONTENTS

Somewhere. Ann M. Atkin	
Cutting squares from rectangles. Derek G. Ball	74
Some thoughts on the use of computer symbols in mathematics. Margaret Brown	78
Teaching vectors in the sixth form. H. Neill	80
Matrix description of transformations in a plane. H. B. Talbot and A. R. Tammadge	92
An elementary method of calculating π . C. W. Puritz	102
Napoleon revisited. R. D. Nelson	108
The two aspects of statistical estimation. G. A. Barnard	116
The 17 plane symmetry groups. R. L. E. Schwarzenberger	123
Rooks inviolate. D. F. Holt	131
Hero and Theon connected by matrices. L. E. Ellis	135
A straight line is the shortest distance between two points. J. H. Webb	137
Classroom notes 302–303	139
Mathematical notes 3354-3355	141
Correspondence	142
Reviews	145
Diploma in Mathematics (Teaching) November 1973	160

ISSN 0025-5572

PRINTED IN GREAT BRITAIN BY WILLIAM CLOWES AND SONS LIMITED LONDON, COLCHESTER AND BECCLES