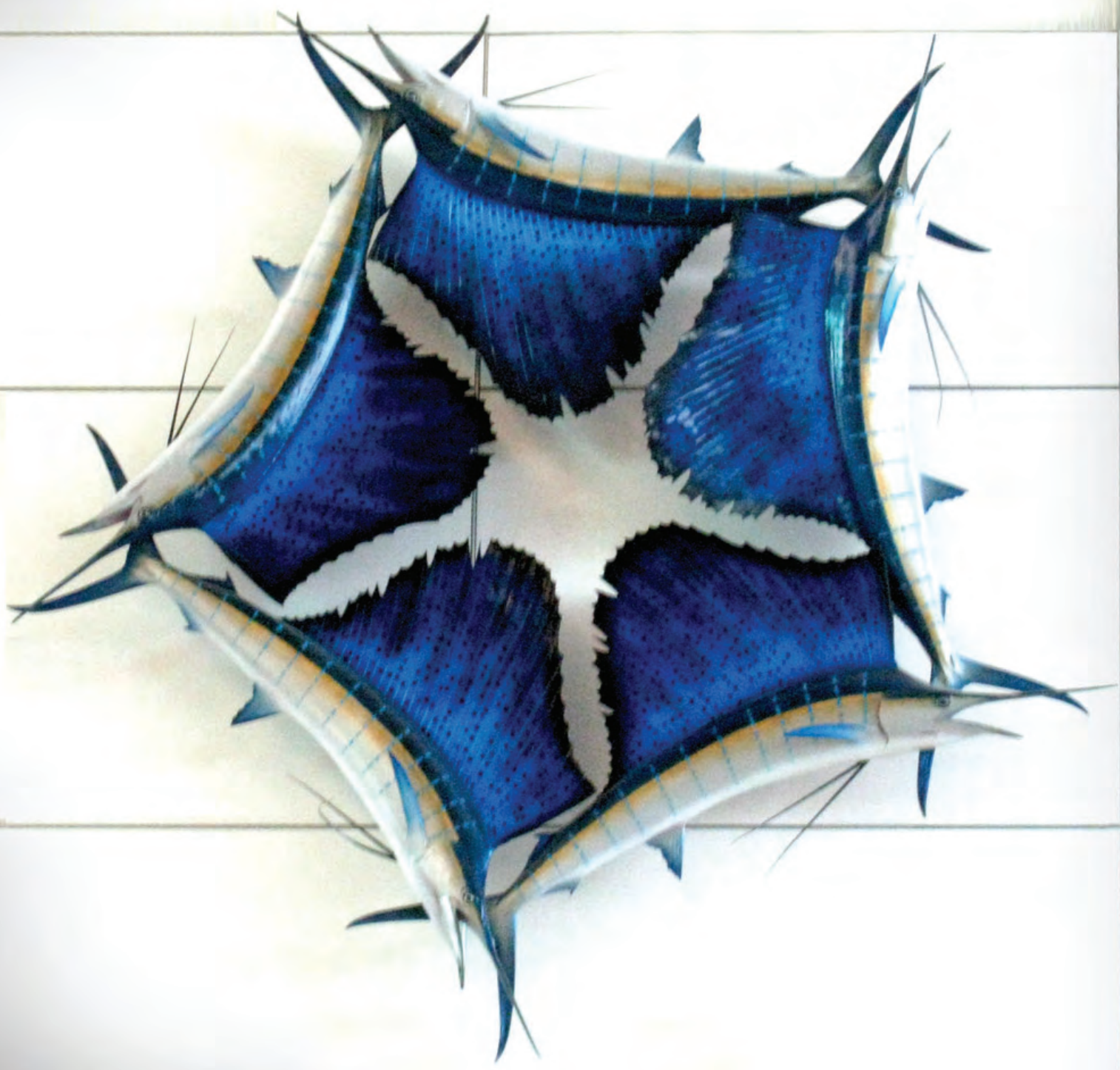
2009 Catalog of
MAA PUBLICATIONS
New Editions and Classics



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Cover Image: A pentagon of sailfish is among the symmetrical arrays of fish on display at Miami International Airport. Photo by Ron Rosier, CBMS.

Brain Fitness and Mathematics

In recent months, I have seen public television programs devoted to brain fitness. They point out the great benefits of continuing to learn as we age, in particular the benefits of keeping our brains healthy. Many of the exercises in brain fitness programs that I have seen have a strong mathematical component, with considerable emphasis on pattern recognition. These programs are expensive, often running between $300-$400.

As a mathematician, you are good at pattern recognition and related habits of mind, and as you age it's important that you continue to exercise your brain by learning more mathematics, your favorite subject. You can do that through research, reading, and solving problems. Books and journals of the MAA can assist in building brain fitness by providing stimulating mathematical reading and problems. Moreover, for considerably less than $400, you can purchase more than ten exemplary books from the MAA that will contribute to keeping your brain fit and expanding your knowledge of mathematics at the same time. It's a really a no-brainer if given the choice between purchasing a brain fitness program and MAA books. For starters, reading an MAA book is more enjoyable than using a brain fitness program.

All of us want to keep our most important possession–our brains–healthy, and the MAA continues to promote brain fitness by publishing wonderful books each year for your delectation. Recent books include **Sink or Float** by Keith Kendig, a distinguished senior professor, prize-winning author and teacher; **Visual Group Theory** by Nathan Carter, a young professor off to a fast start; **Uncommon Mathematical Excursions** by Dan Kalman, winner of multiple writing awards from the MAA; **Problems from Murray Klamkin**, a legendary poser and solver of delicious problems; **Graph Theory: A Problems Oriented Approach** by the late two-time MAA book author Daniel A. Marcus; **Calculus Deconstructed: A Second Course in First-Year Calculus** by the innovative Zbigniew H. Nitecki; **A Radical Approach to Lebesgue's Theory of Integration** by David Bressoud, accomplished author and new President of the MAA; **Mathematical Interest Theory** by the powerful Texas team of Leslie Vaaler and James Daniel; **Biscuits of Number Theory** edited by another prize-winning duo, Ezra (Bud) Brown and Art Benjamin; and many more.

If you order only a few of the fine volumes in this catalog, you will learn more mathematics, help to keep your brain fit, and feel good in the process. Why not help a few colleagues keep fit while you're at it, and order one or two books for them, too.

Happy Reading,

Don Albers
Editorial Director, MAA Books

TEXTBOOK ADOPTION POLICY

To request an examination copy of one of our books, please send your request on departmental letterhead to: The Mathematical Association of America, Examination Copy, P. O. Box 91112, Washington, D. C., 20090-1112. Include the name of your course, the estimated class size, and the adoption decision date. We will send the book along with an invoice payable in 30 days. You may keep the book free for desk use by returning the invoice with certification that you have ordered the book for your course. Otherwise, you may either pay for the book, or return it for full credit.

CARUS MATHEMATICAL MONOGRAPHS (CARUS MONOGRAPHS)
Expositions of mathematical subjects set forth in a manner comprehensible not only to teachers and students specializing in mathematics, but also to scientific workers in other fields. The monographs are intended for the wide circle of thoughtful people familiar with basic graduate or advanced undergraduate mathematics.

CLASSROOM RESOURCE MATERIALS
Provides materials for classroom use by students, including student-research projects, lab exercises or problem sets, other supplemental handouts, innovative texts, and the like. May sometimes include diskettes.

DOLCIANI MATHEMATICAL EXPOSITIONS (DOLCIANI)
Aims at a broad audience. Assumed levels of background range up to that of an undergraduate mathematics major.

MAA NOTES
Rapidly disseminates educational information and reports as well as resources for faculty use.

ANNELI LAX NEW MATHEMATICAL LIBRARY (ANNELI LAX NML)
Features fresh approaches, enrichment material, and broad coverage of topics especially suitable for high school and the first two years of college.

OUTLOOKS
Explores the interplay between mathematics and other disciplines. Authors reveal mathematical content, limitations, and new questions arising from this interplay.

SPECTRUM
Targets the general mathematically-interested reader with broad coverage of biographies, popular works, and monographs of general interest.

PROBLEM BOOKS
A variety of books related to problems and problem-solving, including annual collections of problems from mathematical competitions, collections of problems specific to particular branches of mathematics, and books on the art and practice of problem-solving.

MAA TEXTBOOKS
MAA Textbooks cover all levels of the undergraduate curriculum, with a focus on textbooks for upper division students. They are written by college and university faculty, and are carefully reviewed by an editorial board of teaching faculty in order to ensure superior exposition. The editorial board is especially interested in innovative manuscripts.

Who Gave You the Epsilon?

and Other Tales of Mathematical History

Marlow Anderson, Victor Katz & Robin Wilson, Editors

Spectrum

Praise for **Sherlock Holmes in Babylon**, the prequel to **Who Gave You the Epsilon?**:

This book can be recommended to everybody interested in the history of mathematics and to anybody who loves mathematics. —*EMS Newsletter*

It is helpful to have this particular group of well-written and lively nuggets from the history of mathematics in one location. Overall, the book will prove provocative to students, instructors, both secondary and collegiate scholars, and interested nonexperts. —S. J. Colley, *CHOICE*

Who Gave You the Epsilon? is a sequel to the MAA bestselling book, **Sherlock Holmes in Babylon**. Like its predecessor, this book is a collection of articles on the history of mathematics from the MAA journals, in many cases written by distinguished mathematicians (such as G. H. Hardy and B. van der Waerden), with commentary by the editors. Whereas the former book covered the history of mathematics from earliest times up to the eighteenth century and was organized chronologically, the 40 articles in this book are organized thematically and continue the story into the nineteenth and twentieth centuries.

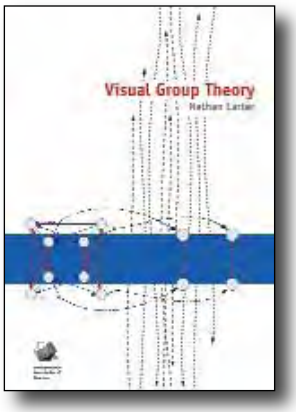
The topics covered in the book are analysis and applied mathematics, geometry, topology and foundations, algebra and number theory, and surveys. This book will be enjoyed by anyone interested in mathematics and its history—and in particular by mathematics teachers at secondary, college, and university levels.

440 pp., 2009 | ISBN: 978-0-88385-569-0 | Hardbound
List: $65.50 | **MAA Member: $52.50** | **Catalog Code: WGE/YD09**

*Buy **Sherlock Holmes in Babylon** (see page 22) along with **Who Gave You the Epsilon?** and save 10% on your order.*

Two Volume Price:

List: ~~$120.45~~ $108.50 MAA Member: ~~$96.45~~ $86.45
Order as Catalog Code: SHWG/YD09



Available March 2009

Visual Group Theory

Nathan Carter

Classroom Resource Materials

Could serve as a text in abstract algebra/group theory at the undergraduate level, or as supplementary reading at the graduate level.

Over 300 illustrations printed in full color.

Group theory is the branch of mathematics that studies symmetry, found in crystals, art, architecture, music, and many other contexts. Its beauty is often lost on students because it is typically taught in a technical style that is difficult to understand. **Visual Group Theory** assumes only a high school mathematics background and covers a typical undergraduate course in group theory from a thoroughly visual perspective.

The more than 300 illustrations in **Visual Group Theory** bring groups, subgroups, homomorphisms, products, and quotients into clear view. Every topic and theorem is accompanied with a visual demonstration of its meaning and import, from the basics of groups and subgroups through advanced structural concepts such as semidirect products and Sylow theory.

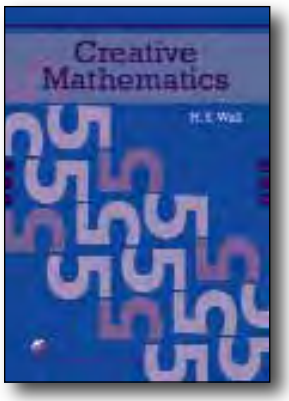
Although the book stands on its own, the free software *Group Explorer* makes an excellent companion. It enables the reader to interact visually with groups, including asking questions, creating subgroups, defining homomorphisms, and saving visualizations for use in other media. It is open source software available for Windows, Macintosh, and Unix systems from http://groupexplorer.sourceforge.net.

334 pp., 2009 | ISBN: 978-0-88385-757-1 | Hardbound
List: $79.95 | **MAA Member: $59.95** | **Catalog Code: VGT/YD09**

*Buy **Visual Group Theory** and get **Oval Track and Other Permutation Puzzles and Just Enough Group Theory to Solve Them** (see page 34 for a description) at a great discount.*

Two Volume Price:

List: $89.95 MAA Member: $69.95 Order as Catalog Code: VGOT/YD09



Creative Mathematics

H. S. Wall

Classroom Resource Materials

Professor H.S. Wall wrote **Creative Mathematics** with the intention of leading students to develop their mathematical abilities, to help them learn the art of mathematics, and to teach them to create mathematical ideas. **Creative Mathematics**, according to Wall, "is not a compendium of mathematical facts and inventions to be read over as a connoisseur of art looks over paintings." It is, instead, a sketchbook in which readers try their hands at mathematical discovery. The book is self contained, and assumes little formal mathematical background on the part of the reader. Wall is earnest about developing mathematical creativity and independence in students. Wall developed **Creative Mathematics** over a period of many years of working with students at the University of Texas at Austin. In less than 200 pages, he takes the reader on a stimulating tour starting with numbers, and then moving on to simple graphs, the integral, simple surfaces, successive approximations, linear spaces of simple graphs, and concluding with mechanical systems. The student who has worked through **Creative Mathematics** will come away with heightened mathematical maturity.

216 pp., 2009 | ISBN: 978-0-88385-750-2 | Hardbound
List: $52.95 | **MAA Member: $42.50** | **Catalog Code: CRMA/YD09**

Sink or Float?

Thought Problems in Math and Physics

Keith Kendig

Dolciani Mathematical Expositions

Sink or Float? Thought Problems in Math and Physics is a collection of problems drawn from mathematics and the real world. Its multiple-choice format forces the reader to become actively involved in deciding upon the answer. The book's aim is to show just how much can be learned by using everyday common sense. The problems are all concrete and understandable by nearly anyone, meaning that not only will students become caught up in some of the questions, but professional mathematicians, too, will easily get hooked. The more than 250 questions cover a wide swath of classical math and physics. Each problem's solution, with explanation, appears in the answer section at the end of the book.

A notable feature is the generous sprinkling of boxes appearing throughout the text. These contain historical asides or little-known facts. The problems themselves can easily turn into serious debate-starters, and the book will find a natural home in the classroom.

An initial Sample Chapter is followed by 10 others, in roughly historical order: Geometry, Numbers, Astronomy, Archimedes' Principle, Probability, Classical Mechanics, Electricity and Magnetism, Heat and Wave Phenomena, The Leaking Tank, Linear Algebra. The second part of the book consists of answers. Sometimes a single concrete problem represents an introduction to a more general concept or method of solution that the student will encounter later on. In just the reverse, a quick, common-sense solution to a problem can represent a surprising alternative to applying the standard but more lengthy technique. A glossary of terms appears at the end of the book.

392 pp., 2008 ISBN: 978-0-88385-339-9 Hardbound
List: $59.95 MAA Member: $47.95 Catalog Code: DOL-33/YD09

Biscuits of Number Theory

Ezra Brown and Arthur Benjamin, Editors

Dolciani Mathematical Expositions

Can be used as a textbook supplement in a number theory course.

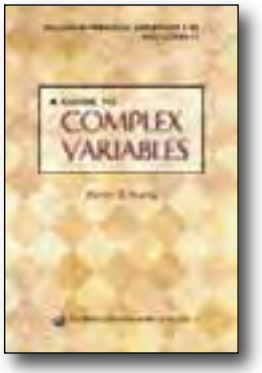
The authors have assembled for us a brilliant collection of scintillating mathematical gems. These short and stimulating articles, centered around topics in number theory, are all accessible at the undergraduate level. —Ron Graham, University of California San Diego and Past President of Mathematical Association of America

What a great book! Pick it up, and it's hard to put down. A common denominator of these articles is that they are accessible and interesting. They provide a wonderful introduction to number theory including many unsolved problems...Here are 40 great articles at your fingertips, making a fantastic resource for further reading after a standard number theory text. There are articles by great masters, recognized expositors, and young beginners, all shining with their love of number theory. If this intrigues you, then try Biscuits. —Carl Pomerance, Dartmouth College

In **Biscuits of Number Theory**, the editors have chosen articles that are exceptionally well written and that can be appreciated by anyone who has taken (or is taking) a first course in number theory. This book could be used as a textbook supplement for a number theory course, especially one that requires students to write papers or do outside reading. The editors give examples of some of the possibilities.

The collection is divided into seven chapters: Arithmetic, Primes, Irrationality, Sums of Squares and Polygonal Numbers, Fibonacci Numbers, Number Theoretic Functions, and Elliptic Curves, Cubes, and Fermat's Last Theorem. As with any anthology, you don't have to read the Biscuits in order. Dip into them anywhere: pick something from the Table of Contents that strikes your fancy, and have at it. If the end of an article leaves you wondering what happens next, then by all means dive in and do some research. You just might discover something new!

336 pp., 2009 ISBN: 978-0-88385-340-5 Hardbound
List: $62.50 MAA Member: $49.95 Catalog Code: DOL-34/YD09



A Guide to Complex Variables

Steven G. Krantz

Dolciani Volume 1, The MAA Guides

The first in a series of MAA GUIDES that will provide readers with an overview of a particular topic. The Guides are meant for students, especially graduate students, and faculty who would like an overview of the subject. They will be useful to those preparing for qualifying exams.

This is a book about complex variables that gives the reader a quick and accessible introduction to the key topics. While the coverage is not comprehensive, it certainly gives the reader a solid grounding in this fundamental area. There are many figures and examples to illustrate the principal ideas, and the exposition is lively and inviting. An undergraduate wanting to have a first look at this subject, or a graduate student preparing for the qualifying exams, will find this book to be a useful resource.

In addition to important ideas from the Cauchy theory, the book also includes the Riemann mapping theorem, harmonic functions, the argument principle, general conformal mapping, and dozens of other central topics.

Readers will find this book to be a useful companion to more exhaustive texts in the field. It is a valuable resource for mathematicians and non-mathematicians alike.

204 pp., 2008 ISBN: 978-0-88385-338-2 Hardbound
List: $49.95 MAA Member: $39.95 Catalog Code: DOL-32/YD09

Uncommon Mathematical Excursions

Polynomia and Related Realms

Dan Kalman

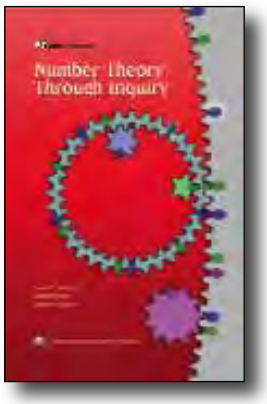
Dolciani Mathematical Expositions

This book would be suitable for mathematical content courses for prospective secondary mathematics teachers, for participants in masters programs (such as MAT), or for secondary mathematics teachers.

Uncommon Mathematical Excursions is for anyone who knows and appreciates the basics of algebra, geometry, and calculus, and would like to learn more. It offers teachers an opportunity to deepen their knowledge of mathematics, not by exploring the far reaches of the subject, but by returning to the core. More generally, for the old hand and new devotee alike, this book will surprise, intrigue, and delight readers with unexpected aspects of old and familiar subjects. Do you recall fondly your first studies of these subjects? Do you remember a sense of wonder and fascination as the main ideas of calculus and algebra and geometry unfolded before your eyes? Would you like to experience it again, making new discoveries about such familiar subjects? If so, this book is for you.

The book is particularly recommended for professional development and continuing education of secondary and college mathematics teachers. It provides teachers an opportunity to enrich and strengthen their command of mathematics, not at advanced theoretical levels, but in direct contact with the topics they teach. Seeing unexpected connections between familiar ideas and discovering interesting new aspects of these ideas contribute to deeper content knowledge and an appreciation of the richness of the mathematics surrounding the standard curriculum.

296 pp., 2009 | ISBN: 978-0-88385-341-2 | Hardbound
List: $61.95 | **MAA Member: $49.95** | **Catalog Code: DOL-35/YD09**



Number Theory Through Inquiry

David C. Marshall, Edward Odell, & Michael Starbird

MAA Textbooks

Number Theory Through Inquiry is an innovative textbook that leads students on a carefully guided discovery of introductory number theory. The book has two equally significant goals. One goal is to help students develop mathematical thinking skills, particularly theorem-proving skills. The other goal is to help students understand some of the wonderfully rich ideas in the mathematical study of numbers. This book is appropriate for a proof transitions course, for an independent study experience, or for a course designed as an introduction to abstract mathematics. Mathematics or related majors, future teachers, and students or adults interested in exploring mathematical ideas on their own will enjoy **Number Theory Through Inquiry**.

Number Theory Through Inquiry contains a carefully arranged sequence of challenges that lead students to discover ideas about numbers and to discover methods of proof on their own. It is designed to be used with an instructional technique variously called guided discovery or Modified Moore Method or Inquiry Based Learning (IBL). This style of instruction gives students a totally different experience compared to a standard lecture course. Here is the effect of this experience:

- Students learn to think independently.
- They learn to depend on their own reasoning to determine right from wrong.
- They develop the central, important ideas of introductory number theory on their own.

Instructor's Manual available with adoption orders.
Call 1-800-331-1622 for details.

150 pp., 2007 | ISBN: 978-0-88385-751-9 | Hardbound
List: $51.00 | **MAA Member: $41.00** | **Catalog Code: NTI/YD09**

Is Mathematics Inevitable?

A Miscellany

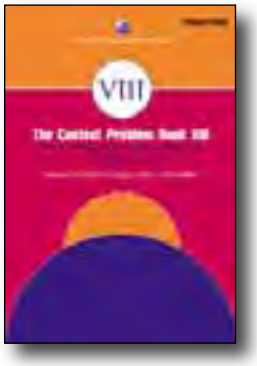
Underwood Dudley, Editor

Spectrum

This is a collection of gems from the literature of mathematics that shine as brightly today as when they first appeared in print. They deserve to be seen and admired.

The selections include two opposing views on the purpose of mathematics, *The Strong Law of Small Numbers*, the treatment of calculus in the 1771 *Encyclopaedia Britannica*, several proofs that the number of legs on a horse is infinite, a deserved refutation of the ridiculous Euler-Diderot anecdote, the real story of π and the Indiana Legislature, the reason why Theodorus stopped proving that square roots were irrational when he got to the square root of 17, an excerpt from *Mathematics Made Difficult*, a glimpse into the mind of a calculating prodigy....There will be something of interest here for almost anyone interested in mathematics.

340 pp., 2008 | ISBN: 978-0-88385-566-9 | Hardbound
List: $56.95 | **MAA Member: $45.50** | **Catalog Code: IMI/YD09**



The Contest Problem Book VIII

American Mathematics Competitions (AMC 10) 2000–2007

J. Douglas Faires & David Wells

Problem Books

In the year 2000, the Mathematical Association of America initiated the American Mathematics Competitions 10 (AMC 10) for students up to grade 10. **The Contest Problem Book VIII** is the first collection of problems from that competition covering the years 2001–2007. J. Douglas Faires and David Wells were the joint directors of the AMC 10 and AMC 12 during that period, and have assembled this book of problems and solutions.

There are 350 problems from the first 14 contests included in this collection. A Problem Index at the back of the book classifies the problems into the following major subject areas: Algebra and Arithmetic, Sequences and Series, Triangle Geometry, Circle Geometry, Quadrilateral Geometry, Polygon Geometry, Counting Coordinate Geometry, Solid Geometry, Discrete Probability, Statistics, Number Theory, and Logic. The major subject areas are then broken down into subcategories for ease of reference. The Problems are cross-referenced when they represent several subject areas.

220 pp., 2008 ISBN: 978-0-88385-825-7 Paperbound
List: $49.95 MAA Member: $39.95 Catalog Code: CP8/YD09

A Documentary Film by George Csicsery

Hard Problems

The Road to the World's Toughest Math Contest

Produced by the MAA in Collaboration with Zala Films

DVD

Follow the journey of the six high school students who represented the United States in 2006 at the world's toughest math competition—the International Mathematical Olympiad (IMO).

Hard Problems gives you behind-the-scenes access to an extraordinary group of individuals. Enter a world of dedication, perseverance, rigorous preparation, and experience the joys and frustrations related to trying to solve incredibly challenging math problems—against competitors from 90 countries—and against the clock.

90 minutes, Color, 2008 ISBN: 978-0-88385-902-5 DVD
List: $24.95 MAA Member: $19.95 Catalog Code: HPR/YD09

Price to colleges includes performance rights: $99.00. A charge of $4.50 will be added for shipping and handling.

The Contest Problem Book IX

American Mathematics Competitions (AMC 12) 2001–2007

David Wells & J. Douglas Faires

Problem Books

This is the ninth book of problems and solutions from the American Mathematics Competitions (AMC) contests. It chronicles 325 problems from the 13 AMC 12 contests given in the years 2001 through 2007. The authors were the joint directors of the AMC 12 and the AMC 10 competitions during that period.

A Problem Index at the back of the book classifies the problems into the subject areas of Algebra, Arithmetic, Complex Numbers, Counting, Functions, Geometry, Graphs, Logarithms, Logic, Number Theory, Polynomials, Probability, Sequences, Statistics, and Trigonometry. A problem that uses a combination of these areas is listed multiple times.

220 pp., 2008 ISBN: 978-0-88385-826-4 Paperbound
List: $49.95 MAA Member: $39.95 Catalog Code: CP9/YD09

Problems from Murray Klamkin

The Canadian Collection

Andy Liu & Bruce Shawyer, Editors

Problem Books

Murray Klamkin was a dedicated problem solver and problem proposer, who left indelible marks on the problemist community. After working in industry and academe in the United States, he spent the last thirty of his eighty-four years in Canada. He was famous for his Quickies, problems that have quick and neat solutions. In this book you will find all of the problems that he proposed for *Crux and Mayhem*, including all of his Quickies. His problems covered a very wide range of topics, and show a great deal of insight into what is possible in these areas. The problems are arranged into sets according to topic, and the lightly edited solutions are as published in *Crux and Mayhem*. Often multiple solutions are provided.

Problems from Murray Klamkin is a valuable resource for anyone interested in problem solving and mathematical competitions. It will appeal to problem solvers at all levels.

Problems from Murray Klamkin: The Canadian Collection is published by the Mathematical Association of America (MAA) in collaboration with the Canadian Mathematical Society (CMS). It is the first volume in the Canadian Collection.

280 pp., 2009 ISBN: 978-0-88385-828-8 Hardbound
List: $61.50 MAA Member: $49.95 Catalog Code: CAN-01

Aha! Solutions

Martin Erickson

Problem Books

Martin Erickson has assembled a splendid collection of one hundred aha! problems—problems that seem difficult but yield readily to a sudden insight. They are arranged on a continuum starting with easy and growing steadily toward not so easy, each leading into a discussion of the math involved. Some old favorites are here, but most are little known. It is a great book about modern math, disguised as a set of cool puzzles.

—Martin Gardner, bestselling author of over 60 books on topics from mathematical games and puzzles to *The Annotated Alice*

This collection of engaging problems and brilliant solutions is first-class in every respect. It offers a full measure of pleasure for the passive reader and a ready opportunity for priceless personal satisfaction for one more active. —Ross Honsberger, Professor Emeritus, University of Waterloo and bestselling author of ten books in the Dolciani Mathematical Exposition Series

Every mathematician (beginner, amateur, and professional alike) thrills to find simple, elegant solutions to seemingly difficult problems. Such happy resolutions are called "aha! solutions," a phrase popularized by mathematics and science writer Martin Gardner. Aha! solutions are surprising, stunning, and scintillating: they reveal the beauty of mathematics.

This collection includes one hundred problems in the areas of arithmetic, geometry, algebra, calculus, probability, number theory, and combinatorics. The problems start out easy and generally get more difficult as you progress through the book. A few solutions require the use of a computer. An important feature of the book is the bonus discussion of related mathematics that follows the solution of each problem. This material is there to entertain and inform you or point you to new questions. If you don't remember a mathematical definition or concept, there is a Toolkit in the back of the book that will help.

224 pp., 2009 ISBN: 978-0-88385-829-5 Hardbound
List: $54.95 MAA Member: $45.95 Catalog Code: ASL/YD09

Coming March 2009

When Less Is More

Visualizing Basic Inequalities

Claudi Alsina and Roger Nelsen

Dolciani Mathematical Expositions

Can be used as supplemental reading for high school and college teachers of mathematics. Teachers will find a wealth of material in the book that can be used to enrich their courses.

Inequalities permeate mathematics, from the *Elements* of Euclid to operations research and financial mathematics. Yet too often, especially in secondary and collegiate mathematics, the emphasis is on things equal to one another rather than unequal. While equalities and identities are without doubt important, they don't possess the richness and variety that one finds with inequalities.

The objective of this book is to illustrate how the use of visualization can be a powerful tool for better understanding some basic mathematical inequalities. Drawing pictures is a well-known method for problem solving, and the authors will convince you that the same is true when working with inequalities. They show how to produce figures in a systematic way for the illustration of inequalities and open new avenues to creative ways of thinking and teaching. In addition, a geometric argument cannot only show two things unequal, but also help the observer see just how unequal they are.

The concentration on geometric inequalities is partially motivated by the hope that secondary and collegiate teachers might use these pictures with their students. Teachers may wish to use one of the drawings when an inequality arises in the course. Alternatively, **When Less Is More** might serve as a guide for devoting some time to inequalities and problem solving techniques, or even as part of a course on inequalities.

164 pp., 2009 ISBN: 978-0-88385-342-9 Hardbound
List: $58.95 MAA Member: $47.95 Catalog Code: DOL-36/YD09

A Mathematical Mosaic

Patterns & Problem Solving

Ravi Vakil

New Expanded Edition published jointly wih Brendan Kelly Publishing, Inc.

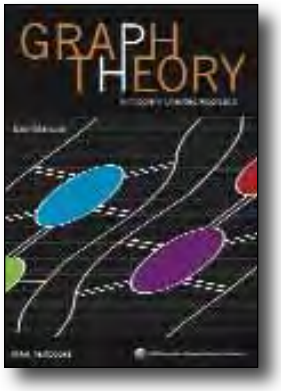
Problem Books

Ravi Vakil, described in the *San Francisco Chronicle* as "a legend in the world of math competitions" has just completed the second edition of **A Mathematical Mosaic: Patterns & Problem Solving**. Regarded by many as a seminal book in the field of mathematics competitions, the first edition of **A Mathematical Mosaic** has received wide acclaim from mathematics teachers, professors and the mathematics community at large.

In this book, Ravi shares what mathematics is really about: beauty, elegance, and the discovery of deep and interconnected patterns. These patterns of nature are often best understood through puzzles and problems, both easy and hard.

This book is a must for teachers seeking to challenge their best students, and for students preparing for mathematics competitions.

288 pp., 2007 ISBN: 978-1-89599-728-6 Paperbound
List: $19.95 No discounts below the published price Catalog Code: MAM/YD09



Graph Theory

A Problems Oriented Approach

Daniel A. Marcus

MAA Textbooks

Can be used as a college level text for mathematics, computer science or engineering students. Also suitable for a general education course at a liberal arts college, or for self-study.

Graph Theory presents a natural, reader-friendly way to learn some of the essential ideas of graph theory starting from first principles. The format is similar to the companion text, **Combinatorics: A Problem Oriented Approach** (see page 15), also by Daniel A. Marcus (MAA 1998), in that it combines the features of a textbook with those of a problem workbook. The material is presented through a series of approximately 360 strategically placed problems with connecting text. This is supplemented by 280 additional problems that are intended to be used as homework assignments. Concepts of graph theory are introduced, developed, and reinforced by working through leading questions posed in the problems.

This problem-oriented format is intended to promote active involvement by the reader while always providing clear direction. This approach figures prominently on the presentation of proofs, which become more frequent and elaborate as the book progresses. Arguments are arranged in digestible chunks and always appear along with concrete examples to keep the readers firmly grounded in their motivation.

Spanning tree algorithms, Euler paths, Hamilton paths and cycles, planar graphs, independence and covering, connections and obstructions, and vertex and edge colorings make up the core of the book. Hall's Theorem, the Konig-Egervary Theorem, Dilworth's Theorem and the Hungarian algorithm to the optimal assignment problem, matrices and latin squares are also explored.

220 pp., 2008 ISBN: 978-0-88385-753-3 Hardbound
List: $55.95 **MAA Member: $44.95** **Catalog Code: GTH/YD09**

Coming Spring 2009

Calculus Deconstructed

A Second Course in First-Year Calculus

Zbigniew H. Nitecki

MAA Textbooks

Can be used for the first semester of the (freshman) Honors Calculus course for students with high school calculus background. Also suitable for a "bridge" course using basic analysis.

A thorough and mathematically rigorous exposition of single-variable calculus for readers with some previous exposure to calculus techniques but not to methods of proof, this book is appropriate for a beginning Honors Calculus course assuming high school calculus or a "bridge course" using basic analysis to motivate and illustrate mathematical rigor. It can serve as a combination textbook and reference book for individual self-study. Standard topics and techniques in single-variable calculus are presented in the context of a coherent logical structure, building on familiar properties of real numbers and teaching methods of proof by example along the way. Numerous examples reinforce both practical and theoretical understanding, and extensive historical notes explore the arguments of the originators of the subject.

No previous experience with mathematical proof is assumed: rhetorical strategies and techniques of proof (*reductio ad absurdum,* induction, contrapositives, etc.) are introduced by example along the way. Between the text and the exercises, proofs are available for all the basic results of calculus for functions of one real variable.

650 pp., 2009 ISBN: 978-0-88385-756-4 Hardbound
List: $72.50 **MAA Member: $57.95** **Catalog Code: CDE/YD09**

Instructors adopting **Calculus Deconstructed** for classroom use may request a copy of the Solutions Manual. See the inside cover of this catalog to lean about our examination copy policy, or call 1-800-331-1622 for more details.

Solutions Manual for *Calculus Deconstructed: A Second Course in First-Year Calculus*

Contains solutions for all of the problems contained in the textbook.

325 pp., 2009 ISBN: 978-0-88385-758-8

Free with adoption orders of 20 or more copies of the textbook.

Coming February 2009

History of Mathematics

Highways and Byways

Amy Dahan-Dalmédico & Jeanne Peiffer

Translated from the French by Sanford Segal

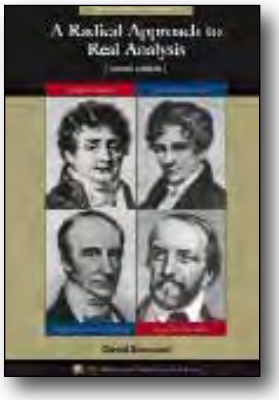
Spectrum

Textbook Supplement

This is a novel, short, and eminently readable history of mathematics. Many histories provide a chronological history of the entire subject, which can sometimes make it difficult to follow the development of a particular branch over time. Dahan-Dalmédico and Peiffer succeed splendidly in tracing each branch from its beginnings forward. They also give an outstanding account of how the Arabs not only preserved Greek mathematics, but extended it in the 800 year period 400–1200. A large number of informative illustrations support the text, contributing to what is a great read.

275 pp., 2008 ISBN: 978-0-88385-562-1 Hardbound
Price to be announced **Catalog Code: HBY/YD09**

The Second Edition of an MAA Bestseller



A Radical Approach to Real Analysis

David Bressoud

Textbook

MAA Textbooks

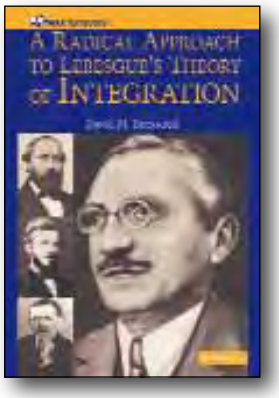
Read what reviewers said about the First Edition.

The past decade or so has witnessed the appearance of a substantial number of "bridge the gap" introductions to real analysis, which lead the students at a gentler pace through the fundamentals of real analysis according to the traditional syllabus. It is well worth considering whether students in their undergraduate real analysis course might be better served by a radical approach such as Bressoud's.
—G.A. Heuer, Mathematical Reviews

It will appeal as a text; it should be in every library as a reference.
—Wayne Roberts, CHOICE

In the second edition of this MAA classic, exploration continues to be an essential component. More than 60 new exercises have been added, and the chapters on Infinite Summations, Differentiability and Continuity, and Convergence of Infinite Series have been reorganized to make it easier to identify the key ideas. **A Radical Approach to Real Analysis** is an introduction to real analysis, rooted in and informed by the historical issues that shaped its development. It can be used as a textbook, or as a resource for the instructor who prefers to teach a traditional course, or as a resource for the student who has been through a traditional course yet still does not understand what real analysis is about and why it was created.

380 pp., 2007 | ISBN: 978-0-88385-747-2 | Hardbound
List: $55.95 | **MAA Member: $45.95** | **Catalog Code: RAN-2E/YD09**



A Radical Approach to Lebesgue's Theory of Integration

David Bressoud

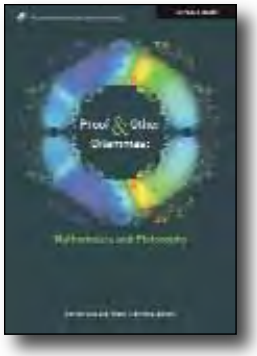
Published jointly with Cambridge University Press

MAA Textbooks

A Radical Approach to Lebesgue's Theory of Integration is a sequel to **A Radical Approach to Real Analysis**. This book is an introduction to measure theory and Lebesgue integration rooted in and motivated by the historical questions that led to its development. It stresses the original purpose of the definitions and theorems, and highlights some of the difficulties that were encountered as these ideas were refined. The text begins with Riemann's definition of the integral, a definition created so that he could understand how broadly one could define a function and yet have it be integrable. The story then follows the efforts of many different mathematicians who wrestled with the difficulties inherent in the Riemann integral, leading to the work in the late 19th and early 20th centuries of Jordan, Borel and Lebesgue who finally broke with Riemann's definition. In ushering in a new way of understanding integration, they opened the door to fresh and productive ways of viewing many of the previously intractable problems of analysis.

This book is not intended to be read as a history of the development of analysis. Rather, it is a textbook informed by history, attempting to communicate the motivations, uncertainties, and difficulties surrounding the key concepts.

320 pp., 2008 | ISBN: 978-0-52171-183-8 | Paperbound
List: $39.99 | **MAA Member: $32.00** | **Catalog Code: RADL/YD09**



Proof and Other Dilemmas: Mathematics and Philosophy

Bonnie Gold &
Roger A. Simons, Editors

Spectrum

Has the advent of computers changed the nature of mathematical knowledge? Should it? Is the importance of proof decreasing? Is there an empirical aspect to mathematics after all? To what extent is mathematics socially constructed? Is mathematics the "science of patterns?" Recently emerging questions like these are discussed in this book along with some recent thinking about classical questions.

During the first 75 years of the Twentieth Century almost all work in the philosophy of mathematics concerned foundational questions. In the last quarter of the century, philosophers of mathematics began to return to basic questions concerning the philosophy of mathematics such as, what is the nature of mathematical knowledge and of mathematical objects, and how is mathematics related to science? Two new schools of philosophy of mathematics, social constructivism and structuralism, were added to the four traditional views (formalism, intuitionism, logicism, and platonism). The advent of the computer led to proofs and the development of mathematics assisted by computer, and to questions of the role of the computer in mathematics.

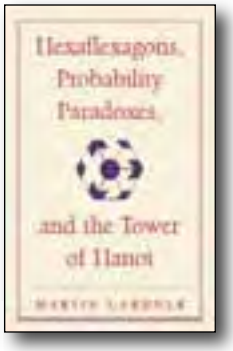
This book of 16 essays, all written specifically for this volume, is the first to explore this range of new developments in language accessible to mathematicians. Approximately half the essays were written by mathematicians, and consider questions that philosophers are not yet discussing. The other half, written by philosophers of mathematics, summarize the discussion in that community during the last 35 years. In each case, a connection is made (in the article itself, or in its introduction) to issues relevant to the teaching of mathematics.

320 pp., 2008 | ISBN: 978-0-88385-567-6 | Hardbound
List: $51.95 | **MAA Member: $41.95** | **Catalog Code: POD/YD09**

Revised and updated classics from MARTIN GARDNER!

Gardner is the crown prince of science. . . . His Mathematical Games column in Scientific American *is one of the few bridges over C. P. Snow's famous 'gulf of mutual incomprehension' that lies between the technical and literary cultures.* — *Time*

Gardner's monthly romp through recreational math and logic ran in Scientific American *for 25 years, from the Sputnik splash to the Reagan reign, and nobody has been able to match it since. "Mathematical Games" was an orgy of right-brain tomfoolery that could be approached for superficial fun or deep insight, or both at the same time...I can't think of a better present for a clever 12-year old, bored undergraduate, restless retiree, or stay-at-home parent fearing intellectual stagnation.* — David Brooks, *The Telegraph*



Hexaflexagons, Probability Paradoxes, and the Tower of Hanoi:

Martin Gardner's First Book of Mathematical Puzzles and Games

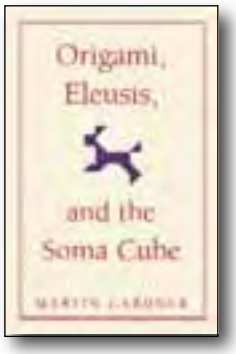
The New Martin Gardner Mathematical Library, Volume 1

Hexaflexagons, Probability Paradoxes, and the Tower of Hanoi is the inaugural volume in Martin Gardner's New Mathematical Library. This book of the earliest of Gardner's enormously popular *Scientific American* columns and puzzles continues to challenge and fascinate readers. Now the author, in consultation with experts, has added updates to all the chapters, including new game variations, mathematical proofs, and other developments and discoveries.

Paradoxes and paper-folding, Möebius variations and mnemonics, fallacies, magic squares, topological curiosities, parlor tricks, and games ancient and modern, from Polyominoes, Nim, Hex, and the Tower of Hanoi to four-dimensional ticktacktoe. These mathematical recreations, clearly and cleverly presented by Martin Gardner, delight and perplex while demonstrating principles of logic, probability, geometry, and other fields of mathematics.

Contents: 1. Hexaflexagons; **2.** Magic with a matrix; **3.** Nine problems; **4.** Ticktacktoe; **5.** Probability paradoxes; **6.** The icosian game and the Tower of Hanoi; **7.** Curious topological models; **8.** The game of hex; **9.** Sam Loyd: America's greatest puzzlist; **10.** Mathematical card tricks; **11.** Memorizing numbers; **12.** Nine more problems; **13.** Polyominoes; **14.** Fallacies; **15.** Nim and tac tix; **16.** Left or right.

208 pp., 2008 ISBN: 978-0-521-73525-4 Paperbound
List: $14.99 **Catalog Code: MGL-01/YD09**



Origami, Eleusis, and the Soma Cube:

Martin Gardner's Mathematical Diversions

The New Martin Gardner Mathematical Library, Volume 2

Martin Gardner continues to delight, by introducing readers to the Generalized Ham Sandwich Theorem, origami, digital roots, magic squares, the mathematics of cooling coffee, the induction game of Eleusis, Dudeney puzzles, the maze at Hampton Court Palace, and many more mathematical puzzles and principles.

Origami, Eleusis, and the Soma Cube, is the second volume in Martin Gardner's New Mathematical Library, based on his enormously popular *Scientific American* columns. The author, in consultation with experts, has added updates to all the chapters, including new game variations, mathematical proofs, and other developments and discoveries, to challenge and fascinate a new generation of readers.

Contents: 1. The five platonic solids; **2.** Tetraflexagons; **3.** Henry Dudeney: England's greatest puzzlist; **4.** Digital roots; **5.** Nine problems; **6.** The soma cube; **7.** Recreational topology; **8.** Phi: the golden ratio; **9.** The monkey and the coconuts; **10.** Mazes; **11.** Recreational logic; **12.** Magic squares; **13.** James Hugh Riley Shows, Inc.; **14.** Nine more problems; **15.** Eleusis: the induction game; **16.** Origami; **17.** Squaring the square; **18.** Mechanical puzzles; **19.** Probability and ambiguity; **20.** The mysterious Dr. Matrix.

248 pp., 2008 ISBN: 978-0-521-73524-7 Paperbound
List: $14.99 **Catalog Code: MGL-02/YD09**

Calculation vs. Context

Quantitative Literacy and Its Implications for Teacher Education

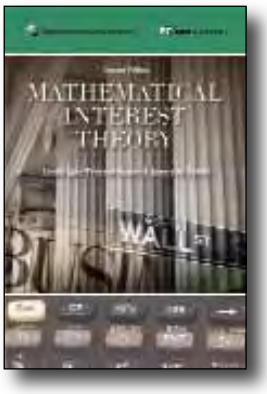
Bernard L. Madison & Lynn Arthur Steen, Editors

MAA Reports

Innovative and more effective quantitative literacy education is urgent both as a part of revitalization of liberal education and as a response to the increasing quantitative reasoning demands of U.S. society. In the information age of today and tomorrow, lives are increasingly governed by numbers. The ubiquity of data and analyses of data require one to use sound quantitative reasoning to cope intelligently with the requirements of citizenship, job, and family, and to be prepared for a healthy, happy, and productive life. But quantitative reasoning for the practical circumstances of life is not part of the school or college curriculum—even for those taking a large complement of mathematics and science courses. In particular, it is not part of the college education of prospective teachers, and it is not a major part of the current national agenda reshaping school curricula. Achieving a quantitatively literate citizenry requires serious changes in the education of teachers and the curricula they teach.

This volume contains the broadest interpretation yet of quantitative literacy (QL) as it should play out across the school and college curriculum. Nine commissioned essays on QL and teacher education by scholars in eight academic disciplines both challenge and expand more traditional views of QL. These essays, introductions by editors Bernard Madison and Lynn Steen, and brief summaries of discussions summarize the proceedings of a June 2007 multidisciplinary conference held at Wingspread Conference Center and sponsored by the MAA's NSF-funded PMET project.

Available free online on the MAA website:
www.maa.org/ql/calcvscontext.html



Mathematical Interest Theory

Leslie Jane Federer Vaaler and James Daniel

MAA Textbooks

Mathematical Interest Theory gives an introduction of how investments grow over time. This is done in a mathematically precise manner. The emphasis is on practical applications that give the reader a concrete understanding of why the various relationships should be true. Among the modern financial topics introduced are: arbitrage, options, futures, and swaps. The content of the book, along with an understanding of probability, will provide a solid foundation for readers embarking on actuarial careers.

On the other hand, **Mathematical Interest Theory** is written for anyone who has a strong high-school algebra background and is interested in being an informed borrower or investor. The content is suitable for a mid-level or upper-level undergraduate course or a beginning graduate course.

Some Key Features of the Book

- Detailed instructions are given on how to use the Texas Instruments BA II Plus and BA II Plus Professional calculators.
- Worked-out examples, with the problem and solution delineated, are given so the reader can think about the problem before reading the solution presented in the text.
- Key formulas, facts, and algorithms are placed in boxes so they stand out in the text, and new terms are printed in boldface as they are introduced.
- Descriptive titles are given for the examples in the book (i.e., "Finding $a(t)$ from δ_t" or "Finding a bond's yield rate") to help students skimming the book quickly find relevant material.
- Exercises feature applied financial questions.
- Writing activities for each chapter introduce each homework set.

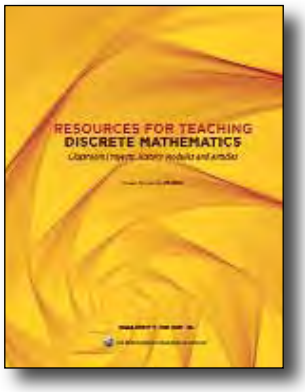
656 pp., 2009 | ISBN: 978-0-88385-754-0 | Hardbound
List: $89.95 | **MAA Member: $71.95** | **Catalog Code: MIT/YD09**

Student Solutions Manual for Mathematical Interest Theory

Leslie Jane Federer Vaaler

This manual is written to accompany **Mathematical Interest Theory**. It includes detailed solutions to the odd-numbered problems. There are solutions to 239 problems, and sometimes more than one way to reach the answer is presented. In keeping with the presentation of the text, calculator discussion for the Texas Instruments BA II Plus or BA II Plus Professional calculators is typeset in a different font from the rest of the text.

120 pp., 2009 | ISBN: 978-0-88385-755-7 | Paperbound
List: $34.00 | **MAA Member: $26.95** | **Catalog Code: MIT-SM/YD09**



Resources for Teaching Discrete Mathematics

Classroom Projects, History Modules and Articles

Brian Hopkins, Editor

MAA Notes

For discrete mathematics teachers at all levels.

This book collects the work of thirty-five instructors who present their experiences in teaching discrete mathematics. Whether you teach at the college or high school level; whether your students are from mathematics, computer science, or engineering; whether you emphasize logic, proof, counting, graph theory, or applications, you will find resources in this book to supplement your discrete mathematics course.

Nineteen classroom-tested projects, eleven history modules drawing on original sources, and five articles address a wide range of topics reflecting the breadth of content and audience in various discrete mathematics courses. A sampling of topics includes building a geodesic dome, working with excerpts of Pascal's "Treatise on the Arithmetical Triangle," applying discrete mathematics to biology and chemistry, and using logic in encouraging students to construct proofs.

338 pp., 2009 | ISBN: 978-0-88385-184-5 | Paperbound
List: $54.95 | **MAA Member: $44.95** | **Catalog Code: NTE-74/YD09**

Making the Connection

Research to Practice in Undergraduate Mathematics Education

Marilyn P. Carlson & Chris Rasmussen

MAA Notes

The chapters in this volume convey insights from mathematics education research that have direct implications for anyone interested in improving teaching and learning in undergraduate mathematics. This synthesis of research on learning and teaching mathematics provides relevant information for any mathematics department or individual faculty member who is working to improve introductory proof courses, the longitudinal coherence of precalculus through differential equations, students' mathematical thinking and problem solving abilities, and students' understanding of fundamental ideas such as variables and rate of change. Other chapters include information about programs that have been successful in supporting students' continued study of mathematics. The authors provide many examples and ideas to help the reader infuse the knowledge from mathematics education research into mathematics teaching practice.

250 pp., 2008 | ISBN: 978-0-88385-183-8 | Hardbound
List: $54.95 | **MAA Member: $44.95** | **Catalog Code: NTE-73/YD09**

Noncommutative Rings

I. N. Herstein

MAA Textbooks

This beautiful book is the result of the author's wide and deep knowledge of the subject matter, combined with a gift for exposition .... The well selected material is offered in an integrated presentation of the structure theory of noncommutative (associative rings) and its applications. The book will appeal to many a reader. It would be wonderful as a textbook, and in fact, it's based on the author's lecture notes .... Only people looking for the most general form of a particular theorem are advised to turn to other books, but those interested in studying or reviewing its subject matter or looking for a rounded account of it, could do no better than choosing this book for this purpose.

—Bulletin of the American Mathematical Society

214 pp., 1968 | ISBN: 978-0-88385-039-8 | Paperbound edition issued 2005
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: NCR/YD09**

(quadratic) The Sensual ^ Form

John Horton Conway

Carus Monographs

Absolutely fascinating from beginning to end.

—Ian Stewart, New Scientist

This is a book rich in ideas. They seem to burst forth from almost every page .... I suspect that the author's hope that "even the experts will find some new enlightenment here" will be realized.

—Carl Riehm, Mathematical Reviews

The book should not be thought of as a textbook on the theory of quadratic forms—it consists rather of a number of essays on particular aspects of quadratic forms that have interested the author. The lectures are self-contained and will be accessible to the generally informed reader who has no particular background in quadratic form theory.

168 pp., 1997 | ISBN: 978-0-88385-040-4 | Paperbound edition issued 2005
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: SQF/YD09**

From Error Correcting Codes Through Sphere Packings to Simple Groups

Thomas M. Thompson

Carus Monographs

An excellent example of the constant interaction between applied and theoretical mathematics.... Thompson's work is first-rate historical research and good clear writing. As a mathematics teacher, he has gone to great pains to make the material understandable to anyone with even a casual acquaintance with vector spaces and groups.

—Henry S. Tropp, Annals of the History of Computing

228 pp., 1984 | ISBN: 978-0-88385-037-4 | Paperbound
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: FEC/YD09**

Irrational Numbers

Ivan Niven

Carus Monographs

In this monograph, Ivan Niven provides a masterful exposition of some central results on irrational, transcendental, and normal numbers. He gives a complete treatment by elementary methods of the irrationality of the exponential, logarithmic, and trigonometric functions with rational arguments. The approximation of irrational numbers by rationals, up to such results as the best possible approximation of Hurwitz, is also given with elementary techniques. The last third of the monograph treats normal and transcendental numbers, including the transcendence of π and its generalization in the Lindemann theorem, and the Gelfond-Schneider theorem.

176 pp., 1976 | ISBN: 978-0-88385-038-1 | Paperbound edition issued 2005
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: IRN/YD09**

Algebra and Tiling

Homomorphisms in the Service of Geometry

Sherman Stein & Sándor Szabó

Carus Monographs

Algebra and Tiling *is perfect for bringing alive an abstract algebra course. Intuitive but difficult problems of geometry are translated into algebraic problems more amenable to solution. Full of nice surprises, this book is a pleasure to read.* *—CHOICE*

Algebra and Tiling is accessible to undergraduate mathematics majors, as most of the tools necessary to read the book are found in standard upper division algebra courses, but teachers, researchers, and professional mathematicians will find the book equally appealing.

224 pp., 1994 | ISBN: 978-0-88385-041-1 | Paperbound edition issued 2006
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: ALT/YD09**

Field Theory and Its Classical Problems

Charles Hadlock

MAA Textbooks

I suggested the book as collateral reading in a one-semester course in Galois theory and the students found it very readable and most helpful in establishing a motivation and direction as we sifted through the modern abstract development.

—John D. Leadley, Mathematical Reviews

Field Theory and Its Classical Problems lets Galois theory unfold in a natural way, beginning with the geometric construction problems of antiquity, continuing through the constructibility of regular n-gons and the properties of roots of unity, and then on to the solvability of polynomial equations by radicals, and beyond. The logical pathway is historic, but the terminology is consistent with modern treatments. No previous knowledge of groups, fields, or abstract algebra is assumed.

323 pp., 1978 | ISBN: 978-0-88385-032-9 | Paperbound
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: FTC/YD09**

Mathematics for Business Decisions Parts 1 & 2

With Interdisciplinary Multimedia Projects

Written by Richard B. Thompson, Department of Mathematics, University of Arizona
Business Projects by Christopher G. Lamoureux, Department of Finance, University of Arizona
Pamela E. Slaten, Department of Management Information Systems, University of Arizona

One of the Mathematical Association of America's best sellers, the electronic texts **Mathematics for Business Decisions**, just got better!

* The availability of site licensing has lowered the per copy cost to students by over 70%.
* A new edition, featuring symbolic calculus, has been added to the series.
* Projects and examples have been updated and all files adjusted for *Windows Vista* and *Office 2007*, as well as for earlier versions of *Windows* and *Office*.

Mathematics for Business Decisons is a set of self-contained, electronic texts that provide material for a two semester sequence of mathematics courses for lower division business students. Mathematical topics are presented in *PowerPoint* files, as tools that student teams apply to major, real-world business projects. Prepared and student created *Excel* files are used to support the mathematics and for simulation.

Mathematics for Business Decisions Part 1, Standard Release 1.5; Probability and Simulation; applies probability, Bayes' Theorem, data analysis, exponential growth, probability distributions, random sampling, and bootstrapping to two business decision scenarios, **Loan Work Outs** and **Stock Option Pricing**. An **Alternative Release 1.5a**, presents the same topics, but substitutes **Managing ATM Queues** for the second project.

Mathematics for Business Decisions Part 2, Release 1.5; Calculus and Optimization; applies differentiation, integration, probability distributions, variance; normal distributions, and Monte Carlo methods to the projects **Marketing Computer Drives** and **Bidding on an Oil Lease**. It develops calculus understanding via numerical and graphical methods, with only limited symbolic manipulation. This is designed for a second course to follow **Mathematics for Business Decisions Part 1**.

A new e-text, **Calculus for Business Decisions, Release 1.5a**; Optimization and Probability; retains the projects, and emphasis on numerical and geometric methods from **Mathematics for Business Decisions Part 2**, but includes symbolic work with most of the standard formulas for differentiation and integration. This can be used for a one semester course in business calculus, having only algebra and some computer experience as prerequisites. It can also be used for a second semester course following **Mathematics for Business Decisions Part 1**.

Any one of the **Mathematics for Business Decisions** texts can be adopted through a site licensing arrangement with the Mathematical Association of America, for a cost of $25 per enrolled student. Licenses will be issued to institutions on an academic year basis. The MAA will provide copies of the software to adopting institutions for distribution to their students.

This site licensing plan, with its associated very low cost per student, is unique in academic publishing. Unlike "on line courses," students are entitled to copy all course files as many times as they wish, and can retain the material indefinitely. All of the files for any one course can be put on a single CD for use in any PC, whether or not it is on the internet. Institutions which are currently using the e-texts are covering the new site licensing costs by assessing an instructional materials course fee as part of the enrollment charges for students who register for courses using the texts. There is, however, no requirement as to how an institution chooses to generate the licensing expense.

System Requirements: Mathematics for Business Decisions and **Calculus for Business Decisions** files will run on PC's with *Windows 98 – Vista*; and *Excel, PowerPoint,* and *Word* from *Microsoft Office Suite 2000-2007*. They are not designed to run on the Macintosh platform.

Examination copies of the e-texts are available for those considering adoption of the material. Call 1-800-331-1622. For more information on the program, visit the **Mathematics for Business Decisions** web site at http://business.math.arizona.edu/MBD/mbd.html.

MAA Textbooks

Part 1. Probability and Simulation
Part 2. Calculus and Optimization

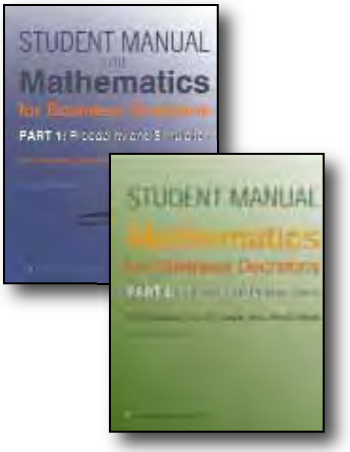
Available through License Agreement

Student Manuals: Mathematics for Business Decisions, Parts 1 & 2

David Williamson, Marilou Mendel, Julie Tarr & Deborah Yoklic

The student manuals for **Mathematics for Business Decisions**, Parts 1 and 2 supplement the course material in many ways. They provide suggestions to help students work effectively with teams in order to successfully complete the projects, as well as additional materials to help the student practice the concepts they have learned.

Included are over 200 combined examples and exercises with worked out solutions; additional explanations of the mathematical topics; a reference to a website containing extensive technical writing guidelines; technological tips on using Microsoft Excel and PowerPoint programs; guidelines for working in teams with suggestions on how to handle team conflicts; suggestions on how you can be a valuable member of your team; strategies for making effective and powerful oral presentations; and commentaries on relevant business topics.



Classroom Resource Materials

STUDENT MANUAL for Mathematics for Business Decisions Part I: Probability and Simulation Versions 1.5 & 1.5a

200 pp., 2005 Paperbound
ISBN: 978-0-88385-743-4
List: $44.00 MAA Member: $35.00
Catalog Code: SMA1/YD09

STUDENT MANUAL for Mathematics for Business Decisions Part 2: Calculus for Business Decisions Release 1.5, Second Edition

326 pp., 2007 Paperbound
ISBN: 978-0-88385-749-6
List: $44.00 MAA Member: $35.00
Catalog Code: SMA2/YD09

Resources for the Study of Real Analysis

Robert Brabenec

Classroom Resource Materials

Textbook Supplement

A rich collection of outlines, problems, historical essays and reprinted articles .... The author has taken care to structure and link material to form a very effective refresher or review that presents real analysis with the complete sense of a single program and coherent history that is too often lost in the demands of teaching a typical course. Highly Recommended. —J. Feroe, *CHOICE*

This book is a collection of materials gathered over the past thirty-six years by the author while teaching a real analysis course. It is intended for use as a supplement to a traditional analysis textbook, or to provide material for seminars or independent study in analysis and its historical development.

240 pp., 2004 ISBN: 978-0-88385-737-3 Hardbound
List: $54.95 MAA Member: $43.95 Catalog Code: RSA/YD09

Fourier Series

Rajendra Bhatia

MAA Textbooks

Textbook

Suitable as a text or in a course in mathematics methods or mathematical physics.

A very readable introduction to Fourier series suitable for scientists and engineers. It is sprinkled with hints about more recent development and has a lot of nice historical comments that will intrigue the best students and math majors.
—Kenneth A. Ross, University of Oregon, Eugene

A concise introduction to Fourier series covering history, major themes, theorems, examples and applications can be used to learn the subject and also to supplement, enhance and embellish undergraduate courses on mathematical analysis.

140 pp., 2005 ISBN: 978-0-88385-740-3 Hardbound
List: $49.95 MAA Member: $39.95 Catalog Code: FSE/YD09

Real Infinite Series

Daniel D. Bonar & Michael J. Khoury, Jr.

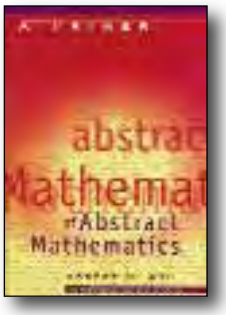
MAA Textbooks

Textbook

This is a great resource of concepts and challenging problems that is useful for teaching and exploring infinite series at any level, in calculus, in analysis, or in preparation for the Putnam Examination.
—David Bressoud, DeWitt Wallace Professor, Macalester College

Real Infinite Series presents the theory of real infinite series, including elementary and advanced tests for convergence or divergence, the harmonic series, the alternating harmonic series, and closely related results. One chapter offers 107 concise, crisp, surprising results about infinite series. Recognizing the interest in problem solving that abounds with students of mathematics, the authors devote a chapter to problems on infinite series, and solutions, which have appeared on the annual William Lowell Putnam Mathematical Competition.

274 pp., 2006 ISBN: 978-0-88385-745-8 Hardbound
List: $59.95 MAA Member: $49.95 Catalog Code: RIS/YD09



A Primer of Abstract Mathematics

Robert Ash

Classroom Resource Materials

Textbook Supplement

This book is meant to prepare the reader to cope with abstract mathematics in general, but is most suitably used in preparation for a course in abstract algebra. It is an excellent supplement for both the student and teacher, who need an alternative approach to promote better understanding of these fundamental topics in advanced mathematics
—Hassika Hasson, *AAAS Science Books and Films*

This book will help prepare the reader to cope with abstract mathematics, specifically abstract algebra. It can serve as a text for prospective math majors, as well as for those students taking or preparing to take a first course in abstract algebra, and for those in applied fields who need experience in dealing with abstract mathematical ideas.

188 pp., 1998 ISBN: 978-0-88385-708-3 Paperbound
List: $36.50 MAA Member: $29.50 Catalog Code: BMA/YD09

Exploratory Examples for Real Analysis

Joanne E. Snow & Kirk E. Weller

Classroom Resource Materials

Textbook Supplement

This text supplement contains 12 exploratory exercises designed to facilitate students' understanding of the most elemental concepts encountered in a first real analysis course: notions of boundedness, supremum/infimum, sequences, continuity and limits, limit suprema/infima, and pointwise and uniform convergence. In designing the exercises, the authors ask students to formulate definitions, make connections between different concepts, derive conjectures, or complete a sequence of guided tasks designed to facilitate concept acquisition.

160 pp., 2003 ISBN: 978-0-88385-734-2 Paperbound
List: $39.95 MAA Member: $32.95 Catalog Code: EXA/YD09

Instructor's Manual available with adoption orders

Essentials of Mathematics

Margie Hale

MAA Textbooks

Textbook

This book is well-written and will, I'm sure, be useful. I would love to teach a course from it.
—Marion Cohen, *MAA Online*

Every mathematician must make the transition from the calculations of high school to the structural and theoretical approaches of graduate school. **Essentials of Mathematics** provides the knowledge needed to move onto advanced mathematical work, and a glimpse of what being a mathematician might be like. No other book takes this particular approach to the task.

186 pp., 2003 ISBN: 978-0-88385-729-8 Hardbound
List: $59.95 MAA Member: $47.95 Catalog Code: ELM/YD09

Complex Analysis
The Geometric Viewpoint

Steven G. Krantz

Carus Monographs

The Second Edition of a Classic Carus Monograph and a Winner of the Beckenbach Book Prize

Praise for the First Edition...

In five very nicely written chapters this book gives an introduction to the approach to function theory via Remannian geometry. Very little function-theoretic background is needed and no knowledge whatsoever of differential geometry is assumed.
—Mathematical Reviews

234 pp., 2003 | ISBN: 978-0-88385-035-0 | Hardbound
List: $56.00 | **MAA Member: $44.00** | **Catalog Code: CAM-232/YD09**

A Course in Mathematical Modeling

Douglas Mooney & Randall Swift

MAA Textbooks

Textbook

I will use this book as a resource of math models to be used throughout the other mathematics courses I teach. Further, I will use it as a text to guide a semester-long faculty development seminar.... I will definitely use it as a reference to integrate modeling in my other courses. —Rich West, *Mathematica in Education and Research*

A Course in Mathematical Modeling is intended as a text for a modeling course accessible to students who have mastered a one-year course in calculus. Mooney and Swift's approach to modeling is presented, balancing theoretical versus empirical models, analytic models versus simulation, deterministic versus stochastic models, and discrete versus continuous models. Most examples are drawn from real-world data or from models that have been used in various applied fields.

500 pp., 1999 | ISBN: 978-0-88385-712-0 | Paperbound
List: $63.50 | **MAA Member: $51.00** | **Catalog Code: MML/YD09**

A Garden of Integrals

Frank Burk

Dolciani

Textbook Supplement

The derivative and the integral are the fundamental notions of calculus. Though there is essentially only one derivative, there is a variety of integrals, developed over the years for a variety of purposes, and this book describes them. No other single source treats all of the integrals of Cauchy, Riemann, Riemann-Stieltjes, Lebesgue, Lebesgue-Stieltjes, Henstock-Kurzweil, Weiner, and Feynman.

The audience for the book is advanced undergraduate mathematics majors, graduate students, and faculty members. Even experienced faculty members are unlikely to be aware of all of the integrals in **A Garden of Integrals** and the book provides an opportunity to see them and appreciate their richness. Professor Burk's clear and well-motivated exposition makes this book a joy to read.

354 pp., 2007 | ISBN: 978-0-88385-337-5 | Hardbound
List: $55.95 | **MAA Member: $45.50** | **Catalog Code: DOL-31/YD09**

Elementary Mathematical Models
Order Aplenty and a Glimpse of Chaos

Dan Kalman

MAA Textbooks

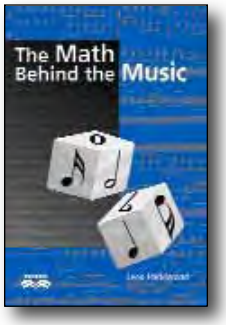
Textbook

Kalman uses basic growth models... not only to convey the power of mathematics in solving real-world problems, but also to motivate the study of the elementary functions usually encountered in college algebra courses. —*CHOICE*

Elementary Mathematical Models (EMM) claims a middle ground between college algebra and liberal arts mathematics. Like the college algebra course, EMM emphasizes the elementary functions of analysis: linear, quadratic, polynomial, and rational functions; square roots; exponentials; and logarithms.

Like the liberal arts mathematics course, EMM makes a concerted effort to convey something of the scope, power, and fascination of mathematics to students who may never study mathematics again.

360 pp., 1997 | ISBN: 978-0-88385-707-6 | Paperbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: EMM/YD09**



The Math Behind the Music

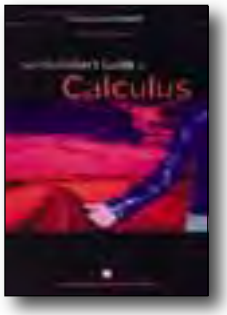
Leon Harkleroad

Outlooks

Mathematics has been used for centuries to describe, analyze, and create music. The book explores the math related to aspects of music from its acoustical bases to compositional techniques to music criticism.

The mathematics involved ranges over areas from probability theory to fourier series to group theory. The book also relates some cautionary tales of misguided attempts to mix music and math. An accompanying audio CD illustrates many of the musical examples that the book discusses.

144 pp., 2006 | ISBN: 978-0-52100-935-5 | Paperbound
List: $24.00 | No discount below the published price | **Catalog Code: MBM/YD09**



The Hitchhiker's Guide to Calculus
A Calculus Course Companion

Michael Spivak

Textbook Supplement

The Hitchhiker's Guide to Calculus explores the ideas of calculus in an easy-to-understand readable format. Be sure your calculus students have a copy of this book!

The book begins with a rapid review of lines and slope. Spivak then takes up non-linear functions and trigonometric functions. He places the magnifying glass on curves in the next chapter and effortlessly leads the reader to the idea of derivative. In the next chapter, he tackles speed and velocity followed by the derivative of sine. Maxima and minima are next. Rolle's theorem and the MVT form the core of Chapter 11, *Watching Experts at Play.* **The Hitchhiker's Guide** closes with a chapter on the integral, the fundamental theorems, and applications of the integral.

122 pp., 1995 | ISBN: 978-0-88385-812-7 | Paperbound
List: $21.95 | **MAA Member: $17.95** | **Catalog Code: HGC/YD09**

The Calculus: A Genetic Approach

Otto Toeplitz, with a new Foreword by David Bressoud

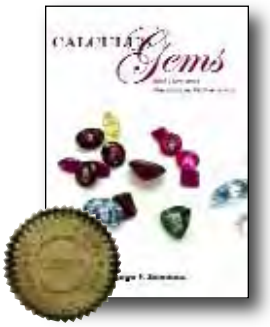
Classroom Resource Materials

Textbook Supplement

Published jointly with University of Chicago Press

When first published posthumously in 1963, **The Calculus: A Genetic Approach** radically altered how the subject was introduced to students and inspired a revolution in how it was taught. In sharp contrast to the methods of his time, Otto Toeplitz did not teach calculus as a static system of techniques and facts to be memorized. Instead, he drew on his knowledge of the history of mathematics and presented calculus as an organic evolution of ideas beginning with the discoveries of Greek scholars, such as Archimedes, Pythagoras, and Euclid, and developing through the centuries in the work of Kepler, Galileo, Fermat, Newton, and Leibniz. Through this unique approach, Toeplitz summarized and elucidated the major mathematical advances that contributed to modern calculus.

194 pp., 2007 ISBN: 978-0-226-80668-6 Paperbound
List: $24.95 No discount below the published price **Catalog Code: CGA/YD09**



Calculus Gems

Brief Lives and Memorable Mathematics

George F. Simmons

Selected as an Outstanding Academic Book by *Choice Magazine*.

Spectrum

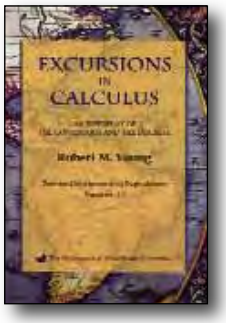
Textbook Supplement

A classic book is back in print! It can be used as a supplement in a Calculus course, or a History of Mathematics course.

The first half of **Calculus Gems**, entitled *Brief Lives*, is a biographical history of mathematics from the earliest times to the late nineteenth century. The author shows that science—and mathematics in particular—is something that people do, and not merely a mass of observed data and abstract theory. He demonstrates the profound connections that join mathematics to the history of philosophy and also to the broader intellectual and social history of Western civilization.

The second half of the book contains nuggets that Simmons has collected from number theory, geometry, science, etc., which he has used in his mathematics classes. G.H. Hardy once said, "A mathematician, like a painter or poet, is a maker of patterns. If his patterns are more permanent than theirs, it is because they are made with ideas." This part of the book contains a wide variety of these patterns, arranged in an order roughly corresponding to the order of the ideas in most calculus courses. Some of the sections have problems.

376 pp., 2007 ISBN: 978-0-88385-561-4 Hardbound
List: $52.95 **MAA Member: $42.95** **Catalog Code: GEMS/YD09**



Excursions in Calculus

An Interplay of the Continuous and the Discrete

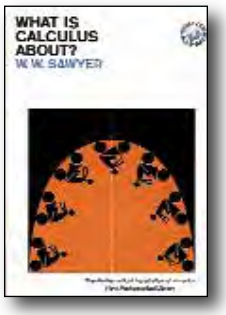
Robert M. Young

Dolciani

Any book published in the Dolciani Mathematical Expositions series will naturally be measured against the remarkably high standards already well established by the previously published titles. In the present case, however, it is safe to say that this addition (the thirteenth in the series) not only easily meets the previously set standards but sets an entirely new standard for future volumes. —*Mathematical Reviews*

The book is addressed primarily to well-trained calculus students and those who teach them, but it can also serve as a supplement in a traditional calculus course for anyone who wants to see more. The problems, taken for the most part from probability, analysis, and number theory, are an integral part of the text. There are over 400 problems presented in this book. Printed with eight full-color plates.

408 pp., 1992 ISBN: 978-0-88385-317-7 Paperbound
List: $46.95 **MAA Member: $36.95** **Catalog Code: DOL-13/YD09**



What Is Calculus About?

W. W. Sawyer

Anneli Lax NML

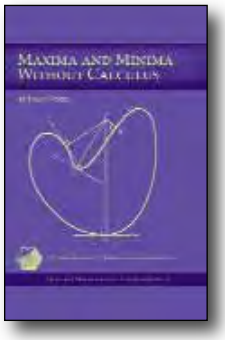
Textbook Supplement

A must for calculus teachers and students.

This book gives students the big picture of calculus. It should be read by prospective and current calculus students and by their teachers. Even someone who has completely mastered the technical side of the subject can benefit from being reminded of the essentially simple ideas and the calculational needs that led mathematicians to develop the rather complex machinery of calculus. Sawyer deals with it all, from what background a student needs to begin, to the study of speed and acceleration, to graphing (slope and curvature), to areas, volumes, and the integral.

118 pp., 1961 ISBN: 978-0-88385-602-4 Paperbound
List: $29.95 **MAA Member: $24.95** **Catalog Code: NML-02/YD09**

The MAA is proud to reissue Ivan Niven's classic.



Maxima and Minima Without Calculus

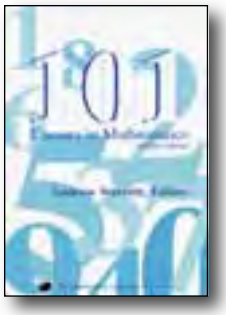
Ivan Niven

Dolciani

A book superb in its exposition and teeming with a variety of elegant mathematical results.... All instructors in calculus courses should keep this book within easy reach and administer generous doses of its contents to students who are seized by a fit of differentiation frenzy when confronted with any kind of extremum problem. —G. D. Chakerian, *Mathematical Reviews*

The purpose of this book is to put together in one place the basic elementary techniques for solving problems in maxima and minima other than the methods of calculus and linear programming. The emphasis is not on individual problems, but on methods that solve large classes of problems.

316 pp., 1981 ISBN: 978-0-88385-306-1 Hardbound Reissued 2004
List: $49.95 **MAA Member: $39.95** **Catalog Code: DOL-06RE/YD09**



101 Careers in Mathematics

Andrew Sterrett, Editor

Second Edition

■ Classroom Resource Materials

I recommend this book highly to teachers at both the high school and the college level who teach mathematics. —*AAAS Science Books and Films*

I liked this book. It made me think about the breadth of my profession, and that forced me to think about its depth as well.... Get a copy of **101 Careers in Mathematics** *to see what comes out the far end of the mathematics education pipeline. It's thought provoking.*
—**J. Kevin Colligan**, *The College Mathematics Journal*

Second edition of the immensely popular **101 Careers in Mathematics**. No career counselor should be without this valuable resource.

360 pp., 2003 ISBN: 978-0-88385-728-1 Paperbound
List: $45.50 MAA Member: $36.50 Catalog Code: OCM/YD09

She Does Math!

Real-Life Problems from Women on the Job

Marla Parker, Editor

■ Classroom Resource Materials

She Does Math! presents the career histories of 38 professional women and math problems related to their work. Each history describes how much math the author took in high school and college, how she chose her field of study, and how she ended up in her current job. Each of the women presents problems that are typical of those she has faced in her job. The problems require nothing beyond high school mathematics for their solution.

272 pp., 1995 ISBN: 978-0-88385-702-1 Paperbound
List: $45.95 MAA Member: $35.95 Catalog Code: SDM/YD09

Combinatorics

A Problem Oriented Approach

Daniel A. Marcus

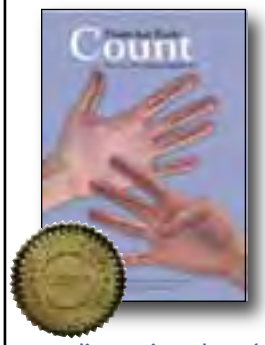
■ MAA Textbooks

The unique format of this book combines features of a traditional textbook with those of a problem book. The subject matter is presented through a series of approximately 250 problems with connecting text where appropriate, and is supplemented by some 200 additional problems for homework assignments. While intended primarily for use as the text for a college-level course taken by mathematics, computer science, and engineering students, the book is suitable as well for a general education course at a good liberal arts college, or for self-study.

156 pp., 1998 ISBN: 978-0-88385-710-6 Paperbound
List: $42.50 MAA Member: $33.50 Catalog Code: CMB/YD09

Instructor's Manual available with adoption orders.
Call 1-800-331-1622 for details.

Selected by Choice Magazine as an Outstanding Academic Book and Winner of the Beckenbach Book Prize



Proofs That Really Count

The Art of Combinatorial Proof

Arthur T. Benjamin & Jennifer J. Quinn

■ Dolciani

Textbook Supplement

Can be used as a supplement in a discrete mathematics, finite mathematics or combinatorics course.

It is a masterpiece. What a great way to introduce students to proofs? Combinatorics is a perfect medium to introduce that forbidding concept of "formal proof," and Benjamin and Quinn did a masterful job of making proofs both accessible, and so much fun. —Doron Zeilberger, Rutgers University

The book explores more than 200 identities throughout the text and exercises, frequently emphasizing numbers not often thought of as numbers that count: Fibonacci numbers, Lucas numbers, continued fractions, and harmonic numbers, to name a few. Numerous hints and references are given for all chapter exercises and many chapters end with a list of identities in need of combinatorial proof. The extensive appendix of identities will be a valuable resource.

208 pp., 2003 ISBN: 978-0-88385-333-7 Hardbound
List: $52.50 MAA Member: $42.50 Catalog Code: DOL-27/YD09

Cryptological Mathematics

Robert Edward Lewand

■ MAA Textbooks

Textbook

The book can be used at several different levels. Those interested in learning how to encipher messages using a variety of symmetric and asymmetric schemes will learn those techniques in this volume. Those interested in learning the mathematical foundations of these techniques will learn how and why the enciphering schemes actually work. And those who are looking for some challenging computer programming exercises will also find exercises in this book to keep them busy.

See the author's web page to download a computer program containing all the modules needed to answer the computer problems in the book: http://faculty.goucher.edu/blewand/cryptomath

220 pp., 2001 ISBN: 978-0-88385-719-9 Paperbound
List: $48.95 MAA Member: $38.95 Catalog Code: CPT/YD09

Elementary Cryptanalysis

Abraham Sinkov

■ MAA Textbooks

Textbook

In this book, Sinkov gives us the mathematical side of elementary cryptography, the single and multiple replacement functions, transpositions, and the like used to encode messages, and how to crack such ciphers. He also shows how the code breaker uses statistical and other regularities of language to deduce the coding and decoding functions.

222 pp., 1966 ISBN: 978-0-88385-622-2 Paperbound
List: $32.95 MAA Member: $23.50 Catalog Code: NML-22/YD09

Game Theory and Strategy

Philip D. Straffin, Jr.

Textbook

MAA Textbooks

***Game Theory and Strategy** is an elegant crystal-clear expository work. Key concepts are emphasized and clearly explained.* —*Nature*

This important addition to the list of MAA Textbooks series pays careful attention to applications of game theory in a wide variety of disciplines. The applications are treated in considerable depth. The book assumes only high school algebra, yet gently builds to mathematical thinking of some sophistication. **Game Theory and Strategy** might serve as an introduction to both axiomatic mathematical thinking and the fundamental process of mathematical modeling. It gives insight into both the nature of pure mathematics and the way in which mathematics can be applied to real problems.

200 pp., 1993 ISBN: 978-0-88385-637-6 Paperbound
List: $46.95 MAA Member: $37.95 Catalog Code: NML-36/YD09

Second Edition of an MAA Classic

The Mathematics of Games and Gambling

Edward Packel

Textbook

MAA Textbooks

Suitable as a textbook in a probability or a finite mathematics course.

This book introduces and develops some of the important and beautiful elementary mathematics needed for rational analysis of various gambling and game activities. It assumes the reader has a solid background in secondary school mathematics. Mathematical ideas are interspersed with applications to casino games and other gambling and gaming activities, with emphasis on the mathematical ideas behind games and playing them strategically. The book includes many helpful Internet links that give additional information about games and allow the reader to play them and demonstrate them online.

192 pp., 2006 ISBN: 978-0-88385-646-8 Hardbound
List: $49.95 MAA Member: $39.95 Catalog Code: NML-28E2/YD09

A runaway bestseller!

Conics

Keith Kendig

Dolciani

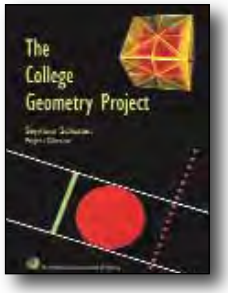
36 applets packaged with book

Textbook Supplement

The book is illustrated with pictures, worked-out examples, a generous selection of exercises, and a CD containing 36 applets. **Conics** is written in an easy, conversational style, with historical tidbits and other points of interest scattered throughout the text. Many students can self-study the book without outside help. It contains a generous selection of exercises, and is ideal for anyone having a little exposure to linear algebra and complex numbers.

System Requirements. For running the applets: CD will run on a PC with Windows NT/2000, Windows XP or later, or on a Mac with OS X 10.3.4 or later. Minimum speed/memory is GH/128MB RAM. Safari browser recommended for the Mac.

432 pp., 2005 ISBN: 978-0-88385-335-1 Hardbound
List: $66.95 MAA Member: $53.50 Catalog Code: DOL-29/YD09



The College Geometry Project

Reissued 2008 on two DVDs

DVD

From 1965–1971, the National Science Foundation funded a star-studded group of geometers to produce a series of geometry films at the University of Minnesota. The geometers (H.S.M. Coxeter, Chandler Davis, Joseph Konhauser, William Moser, Daniel Pedoe, and Seymour Schuster), under the overall direction of Schuster, developed twelve beautiful films over a period of six years. The films are noted for their broad range of topics and beautiful graphics. Given the state of technology forty years ago, the graphics and animations are even more impressive.

2 hours 52 minutes ISBN: 978-1-88385-752-6 Color DVD Reissued 2008
List: $65.95 MAA Member: $54.95 Catalog Code: GPR/YD09

Differential Geometry and Its Applications

John Oprea

Second Edition

Textbook

MAA Textbooks

Differential geometry has a wide range of applications, going far beyond strictly mathematical pursuits to include architecture, engineering, and just about every scientific discipline. John Oprea's second edition of **Differential Geometry and Its Applications** illuminates a wide range of ideas that can be beneficial to students majoring not only in mathematics but also in other fields.

The textbook touches on many different mathematical concepts, including aspects of linear algebra, the Gauss-Bonnet Theorem, and geodesics. It also encourages students to visualize and experiment with the ideas they are studying through their use of the computer program Maple. This allows students to develop a better understanding of the mathematics involved in differential geometry.

510 pp., 2007 ISBN: 978-0-88385-748-9 Hardbound
List: $74.00 MAA Member: $61.00 Catalog Code: DGA/YD09

Translated from the German by Peter Hilton and Jean Pedersen

99 Points of Intersection

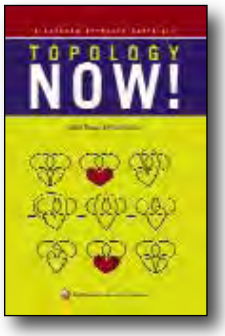
Examples–Pictures–Proofs

Hans Walser

Spectrum

The 99 points of intersection presented here were collected during a year-long search for surprising concurrence of lines. For each example we find compelling evidence for the sometimes startling fact that in a geometric figure three straight lines, or sometimes circles, pass through one and the same point. Of course, we are familiar with some examples of this from basic elementary geometry—the intersection of medians, altitudes, angle bisectors, and perpendicular bisectors of sides of a triangle. Here there are many more examples—some for figures other than triangles, some where even more than three straight lines pass through a common point.

168 pp., 2006 ISBN: 978-0-88385-553-9 Hardbound
List: $51.95 MAA Member: $41.95 Catalog Code: POI/YD09



Topology Now!

Robert Messer & Philip Straffin

MAA Textbooks

Textbook

Topology is a branch of mathematics packed with intriguing concepts, fascinating geometrical objects, and ingenious methods for studying them. The authors have written this textbook to make this material accessible to undergraduate students without requiring extensive prerequisites in upper-level mathematics. The approach is to cultivate the intuitive ideas of continuity, convergence, and connectedness so students can quickly delve into knot theory, the topology of surfaces and three-dimensional manifolds, fixed points, and elementary homotopy theory. The fundamental concepts of point-set topology appear at the end of the book when students can see how this level of abstraction provides a sound logical basis for the geometrical ideas that have come before. This organization exposes students to the exciting geometrical ideas of topology now(!) rather than later.

254 pp., 2006 | ISBN: 978-0-88385-744-1 | Hardbound
List: $57.95 | **MAA Member: $46.95** | **Catalog Code: TPN/YD09**

The Golden Section

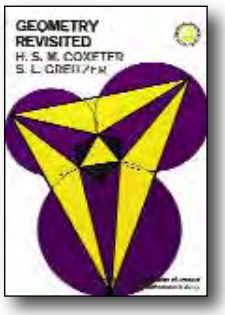
Hans Walser / Translated from the German by Peter Hilton, with the assistance of Jean Pedersen

Spectrum

The book looks like an excellent, reader-oriented introduction to the theory and practice of the golden section. The questions included in the text as well as the answers provided at the end of the book are interesting, helpful and instructive. —*Mathematical Reviews*

Since antiquity, the Golden Section has played a significant role in many parts of geometry, architecture, music, art, and philosophy. But it also appears in the newer domains of technology and fractals. In this way, the Golden Section is no isolated phenomenon but rather, in many cases, the first and also the simplest non-trivial example in a sequence of generalizations leading to further developments.

132 pp., 2001 | ISBN: 978-0-88385-534-8 | Paperbound
List: $32.00 | **MAA Member: $25.95** | **Catalog Code: GOS/YD09**



An MAA Classic!

Geometry Revisited

H. S. M. Coxeter & S. L. Greitzer

MAA Textbooks

Textbook

The book is rich in remarkable facts and thereby is very effective in promoting the significance and the value of geometry in mathematical teaching, a promotion which is very necessary.
—*Mathematical Reviews*

Among the many beautiful and nontrivial theorems in geometry found here are the theorems of Ceva, Menelaus, Pappus, Desargues, Pascal, and Brianchon. A nice proof is given of Morley's remarkable theorem on angle trisectors. The transformational point of view is emphasized: reflections, rotations, translations, similarities, inversions, and affine and projective transformations. Many fascinating properties of circles, triangles, quadrilaterals, and conics are developed.

193 pp., 1967 | ISBN: 978-0-88385-619-2 | Paperbound
List: $29.95 | **MAA Member: $24.95** | **Catalog Code: NML-19/YD09**

The Changing Shape of Geometry

Celebrating a Century of Geometry and Geometry Teaching

Chris Pritchard, Editor

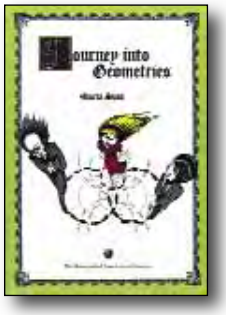
Textbook Supplement

Spectrum

A Joint Publication of the MAA, Cambridge University Press, and the Mathematical Association (Great Britain).

Celebrating a century of geometry and geometry teaching, this book will give the reader an enjoyable insight into all things geometrical. There is a wealth of popular articles including sections on Phythagoras, the golden ratio, and recreational geometry. Historical items drawn principally from the *Mathematical Gazette,* are authored by mathematicians such as G. H. Hardy, Rouse Ball, Thomas Heath, and Bertrand Russell as well as some more recent expositors.

557 pp., 2003 | ISBN: 978-0-521-53162-7 | Paperbound
List: $50.00 | **MAA Member: $40.00** | **Catalog Code: CSG/YD09**



Journey into Geometries

Marta Sved / Foreword by H. S. M. Coxeter

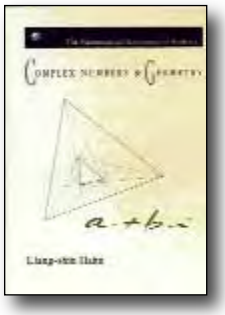
Textbook Supplement

Spectrum

Anyone who is interested in mathematics can benefit from Sved's book, in that one is forced to reflect on prior conceptions of mathematics in general, and how it is presented to students.... All prospective teachers of secondary mathematics should be required to study this book both in content and style.
—*CHOICE*

Journey into Geometries can be read at two levels. It can be studied as an informal introduction to post-Euclidean geometry, or it can serve as background material for university students. The material presented in the text is extended by carefully selected problems. The background required is minimal, standard high school geometry, yet the serious student, aided by problems attached to each chapter, should acquire a deeper understanding of the subject.

192 pp., 1991 | ISBN: 978-0-88385-500-3 | Paperbound
List: $36.95 | **MAA Member: $29.95** | **Catalog Code: JOG/YD09**



Complex Numbers & Geometry

Liang-shin Hahn

MAA Textbooks

Textbook

Provides a self-contained introduction to complex numbers and college geometry written in an informal style with an emphasis on the motivation behind the ideas.... The author engages the reader with a casual style, motivational questions, interesting problems and historical notes.
—*Mathematical Reviews*

The book is self-contained—no background in complex numbers is assumed—and can be covered at a leisurely pace in a one-semester course.

200 pp., 1994 | ISBN: 978-0-88385-510-2 | Paperbound
List: $39.95 | **MAA Member: $31.95** | **Catalog Code: CNGE/YD09**

Math Made Visual

Claudi Alsina & Roger Nelsen

Classroom Resource Materials

Is it possible to make mathematical drawings that help to understand mathematical ideas, proofs, and arguments? The authors of this book are convinced that the answer is "yes" and the objective of this book is to show how some visualization techniques may be employed to produce pictures that have both mathematical and pedagogical interest.

Oftentimes, a person encountering a "proof without words" may have the feeling that the pictures involved are the result of a serendipitous discovery or the consequence of an exceptional ingenuity on the part of the picture's creator. In this book, the authors show that behind most of the pictures "proving" mathematical relations are some well-understood methods.

204 pp., 2006 | ISBN: 978-0-88385-746-5 | Hardbound
List: $53.95 | **MAA Member: $43.95** | **Catalog Code: MMV/YD09**

Second Printing!

Knot Theory

Charles Livingston

MAA Textbooks

The Association of American Publishers' choice as the Outstanding Mathematics Book of 1993!

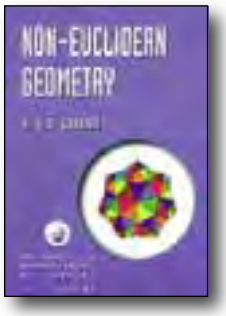
The author's book would be a good text for an undergraduate course in knot theory.... The topics in the book are nicely tied together.... The topics and the exercises together can provide an opportunity for many undergraduates to get a real taste of what present day mathematics is like.

—Mathematical Reviews

Graduate students beginning a program of advanced study will find a worthwhile overview, and the reader will need no training beyond linear algebra to understand the mathematics presented. An extensive collection of exercises is included.

264 pp., 1993 | ISBN: 978-0-88385-027-5 | Hardbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: CAM-24/YD09**

The Sixth Edition of a classic!



Non-Euclidean Geometry

H. S. M. Coxeter

MAA Textbooks

A classic text on the elliptic and hyperbolic non-Euclidean geometries in two and three dimensions.... I recommend this book highly to anyone interested in exploring the concepts of non-Euclidean geometry.

—AAAS Science Books and Films

Throughout most of this book, non-Euclidean geometries in spaces of two or three dimensions are treated as specializations of real projective geometry in terms of a simple set of axioms concerning points, lines, planes, incidence, order, and continuity, with no mention of the measurement of distances or angles.

320 pp., 1998 | ISBN: 978-0-88385-522-5 | Paperbound
List: $42.95 | **MAA Member: $33.95** | **Catalog Code: NEC/YD09**

BESTSELLER—Third Printing

Proofs Without Words

Exercises in Visual Thinking

Roger B. Nelsen

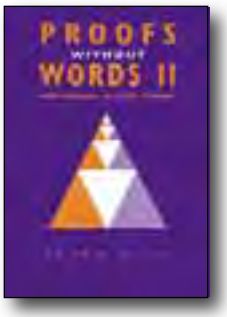
Classroom Resource Materials

Every time I have shown this book to a colleague, I have been asked how to get hold of it. It is an absolute delight.... Buy a copy today.

—The Mathematical Gazette

Proofs in this collection are arranged by topic into six chapters: geometry and algebra; trigonometry, calculus, and analytic geometry; inequalities; integer sums; and sequences and series. Teachers will find that many of the proofs in this collection are well suited for classroom discussion and for helping students to think visually in mathematics.

160 pp., 1993 | ISBN: 978-0-88385-700-7 | Paperbound
List: $39.95 | **MAA Member: $29.95** | **Catalog Code: PWW/YD09**



Proofs Without Words II

More Exercises in Visual Thinking

Roger B. Nelsen

Classroom Resource Materials

I highly recommend this book for hours of pure mathematics fun and enjoyment.

—Walter Saunders, *The Mathematics Teacher*

Like its predecessor **Proofs Without Words**, published by the MAA in 1993, this book is a collection of pictures or diagrams that help the reader see why a particular mathematical statement may be true, and also to see how one might begin to go about proving it true. The emphasis is on providing visual clues to the observer to stimulate mathematical thought.

The proofs in this collection are arranged by topic into five chapters: geometry and algebra; trigonometry, calculus, and analytic geometry; inequalities; integer sums and infinite series; and linear algebra. Although the proofs without words are presented primarily for the enjoyment of the reader, teachers will want to use them with students at many levels—in precalculus courses in high school, college courses in calculus, number theory, and combinatorics, and pre-service and in-service classes for teachers.

142 pp., 2000 | ISBN: 978-0-88385-721-2 | Paperbound
List: $39.95 | **MAA Member: $29.95** | **Catalog Code: PW2/YD09**

BUY BOTH VOLUMES AND SAVE!
Catalog Code: PR2/YD09 • List: $72.00 • MAA Member: $54.00

Mathematical Connections

A Companion for Teachers and Others

Al Cuoco

MAA Textbooks

These beautiful problem sets allow readers to discover mathematical ideas for themselves.... I have used Cuoco's problem sets as the foundation for several courses that I have taught to other teachers. — Benjamin Stillwell, Chelsea High School and PCMI

This book is about some topics and ways of thinking that form the foundations for high school mathematics. One of the primary audiences is high school teachers. It can be used as a text for undergraduate or professional courses, and the design lends itself to self study.

266 pp., 2005 | ISBN: 978-0-88385-739-7 | Hardbound
List: $58.00 | **MAA Member: $46.95** | **Catalog Code: MCO/YD09**

Understanding Our Quantitative World

Janet Andersen & Todd Swanson

The perfect text for a general education mathematics course or a course in quantitative literacy.

MAA Textbooks

Understanding Our Quantitative World is intended for a general education mathematics course, focusing on the topics that students will encounter after college. These topics fall into the two main themes of the text; functions and statistics. The book is written in a conversational tone and is intended to be read by students. Each section begins by setting the mathematics within context and ends with an application. Reading questions are given to aid students in the learning process. *Activities and Class Exercises* are found at the end of each section. These activities are taken from public sources such as newspapers, magazines, and the Internet, and are intended for students to work on in groups during class. While designed as a textbook, the book can also be used as a self-study text.

320 pp., 2005 | ISBN: 978-0-88385-738-0 | Hardbound
List: $58.00 | **MAA Member: $46.95** | **Catalog Code: UQW/YD09**

Hands On History

A Resource for Teaching Mathematics

Amy Shell-Gellasch, Editor

MAA Notes

This volume is a compilation of articles from researchers and educators who use the history of mathematics to facilitate active learning in the classroom. The contributions range from descriptions of simple devices such as the rectangular protractor that can be made in a geometry classroom, to elaborate models of descriptive geometry that can be used as a major project in a college mathematics course. Other chapters contain detailed descriptions on how to build and use historical models in the high school or collegiate mathematics classroom. Some of the items included in this volume are: sundials, planimeters, Napier's Bones, linkages, a cycloid clock, a labyrinth, and an apparatus that demonstrates the brachistocrone in the classroom.

190 pp., 2007 | ISBN: 978-0-88385-182-1 | Paperbound
List: $54.95 | **MAA Member: $44.95** | **Catalog Code: NTE-72/YD09**

Achieving Quantitative Literacy

An Urgent Challenge for Higher Education

Lynn Arthur Steen

MAA Notes

This greater demand for higher order competencies is nowhere more apparent than in the area of quantitative literacy. Although no less important for all citizens than fluency in reading and writing, quantitative literacy too often continues to be the province of the few. Indeed, for too long our educational system has produced a scientific and mathematical elite while failing to nurture the literate citizenry required for robust democracy. As a result, the gap between expert and citizen has widened dangerously, most notably when numbers and data are brought to bear in deciding public and private issues—and one can scarcely think of an issue in contemporary life where this is not the case.

124 pp., 2004 | ISBN: 978-0-88385-816-5 | Paperbound
List: $34.00 | **MAA Member: $27.00** | **Catalog Code: NTE-62/YD09**

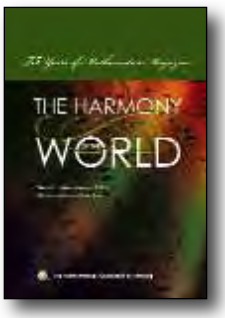
Current Practices in Quantitative Literacy

Rick Gillman

MAA Notes

Current Practices in Quantitative Literacy presents a wide sampling of efforts being made on campuses across the country to achieve our common goal of having a quantitatively literate citizenry. Colleges and universities have grappled with complicated issues in order to define quantitative literacy within their own communities and to implement appropriate curriculum. It is clear that any quantitative literacy program must be responsive to the local conditions of an institution including its mission, its student clientele, its history, and its resources.

187 pp., 2006 | ISBN: 978-0-88385-180-7 | Paperbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: NTE-70/YD09**



The Harmony of the World

75 Years of *Mathematics Magazine*

Gerald L. Alexanderson, Editor with the assistance of Peter Ross

Spectrum

Who would expect to find in the pages of *Mathematics Magazine* the first full treatment of one of the more important and oft-cited twentieth century theorems in analysis, the Stone-Weierstrass Theorem—in an article by Marshall Stone himself? Where else would you look for proofs of trigonometric identities using commutative ring theory? Or one of the earliest and best expository articles on the then-new Jones knot polynomials, an article that won the prestigious Chauvenet Prize? Or an amusing article purporting to show that the value of π has been time dependent over the years? These and many more are in this collection of the "best" from *Mathematics Magazine*.

304 pp., 2007 | ISBN: 978-0-88385-560-7 | Hardbound
List: $56.95 | **MAA Member: $45.95** | **Catalog Code: HRW/YD09**

An MAA Bestseller

Euler: The Master of Us All

William Dunham

Selected as an Outstanding Academic Book by *Choice Magazine*.

Seventh Printing

Dolciani

Dunham's fine book captures the spirit of Euler's achievements and enables the English reader with a solid background in calculus and school algebra to share the enjoyment. —*Math Reviews*

Written for the mathematically literate reader, this book provides a glimpse of Euler in action. Following an introductory biographical sketch are chapters describing his contributions to eight different topics—number theory, logarithms, infinite series, analytic number theory, complex variables, algebra, geometry, and combinatorics.

192 pp., 1999 | ISBN: 978-0-88385-328-3 | Paperbound
List: $41.50 | **MAA Member: $33.50** | **Catalog Code: DOL-22/YD09**

The Early Mathematics of Leonhard Euler

C. Edward Sandifer

Volume 1 –
The MAA Tercentenary Euler Celebration

Spectrum

This book is not only extremely important, it is also a beautiful material object.
—Massimo Gulazzi, *Mathematical Reviews*

The Early Mathematics of Leonhard Euler describes Euler's early mathematical works: the 50 mathematical articles he wrote before he left St. Petersburg in 1741 to join the Academy of Frederick the Great in Berlin. These works contain some of Euler's greatest mathematics; the Königsberg bridge problem, his solution to the Basel problem, and his first proof of the Euler-Fermat theorem.

416 pp., 2007 | ISBN: 978-0-88385-559-1 | Hardbound
List: $53.95 | **MAA Member: $43.95** | **Catalog Code: EUL-01/YD09**

The Genius of Euler
Reflections on His Life and Work

William Dunham, Editor

Volume 2 –
The MAA Tercentenary Euler Celebration

Spectrum

Leonhard Euler and William Dunham make for a potent combination. Dunham's 1999 book **Euler: The Master of Us All** *is still perhaps the best introduction to the mathematical work of Euler available.... It is a great pleasure that Dunham has given us this new book to mark the tercentenary.* —Rob Bradley, President, The Euler Society

This book celebrates the 300th birthday of Leonhard Euler. The collected articles, aimed at a mathematically literate audience, address aspects of Euler's life and work, from the biographical to the historical to the mathematical. The oldest of these was written in 1872, and the most recent dates to 2006.

324 pp., 2007 | ISBN: 978-0-88385-558-4 | Hardbound
List: $51.95 | **MAA Member: $41.95** | **Catalog Code: EUL-02/YD09**

How Euler Did It

C. Edward Sandifer

Volume 3 –
The MAA Tercentenary Euler Celebration

Spectrum

The articles are interesting to read on several levels: mathematically, historically, and for plain fun. —M. D. Sanford, *CHOICE*

How Euler Did It is a collection of the monthly columns that appeared on MAA Online between November 2003 and February 2007 about the life and mathematical and scientific work of Leonhard Euler. Almost every column is self-contained, and gives the context, significance, and some of the details of a particular facet of Euler's work.

256 pp., 2007 | ISBN: 978-0-88385-563-8 | Hardbound
List: $51.95 | **MAA Member: $41.95** | **Catalog Code: EUL-03/YD09**

Euler and Modern Science

N. N. Bogolyubov, G. K. Mikhaĭlov & A. P. Yushkevich, Editors

Translated from Russian by Robert Burns

Volume 4 –
The MAA Tercentenary Euler Celebration

Spectrum

The papers, by a stellar assembly of Russian scholars, are of uniformly high quality. They cover seemingly every aspect of Euler's life and work, from the well-known areas such as number theory and analysis to the lesser-known (at least to this reviewer) such as algebra and music theory. The papers on Euler's mathematics are written at a technical level that will satisfy mathematicians, professional historians and graduate students in both areas....For libraries serving these audiences, this book is an absolutely essential resource. —A. B. Riskin, *CHOICE*

425 pp., 2007 | ISBN: 978-0-88385-564-5 | Hardbound
List: $59.95 | **MAA Member: $47.95** | **Catalog Code: EUL-04/YD09**

Euler at 300: An Appreciation

Robert E. Bradley, Lawrence A. D'Antonio & C. Edward Sandifer, Editors

Volume 5 –
The MAA Tercentenary Euler Celebration

Spectrum

The Editors and the MAA have performed a real service by making this material available to a wider audience. The writing is at a uniformly high level and should interest both historians of mathematics, and indeed any mathematician with a fondness for Euler (meaning everyone!). Highly recommended. —S. J. Colley, *CHOICE*

During the years leading up to Leonhard Euler's tercentenary, at more than a dozen academic meetings across the USA and Canada, mathematicians and historians of mathematics honored Euler in papers detailing his life and work. This book collects together more than 20 papers based on some of the most memorable of these contributions.

320 pp., 2007 | ISBN: 978-0-88385-565-2 | Hardbound
List: $51.95 | **MAA Member: $41.95** | **Catalog Code: EUL-05/YD09**

Don't miss Steven Krantz's first volume of "Apocrypha." An MAA Bestseller!

Mathematical Apocrypha

Stories and Anecdotes of Mathematicians and the Mathematical

Steven G. Krantz

Spectrum

Mathematical Apocrypha is the first volume of Steven Krantz's anecdotes, stories, quips, and ruminations about mathematicians and the mathematical. Although the theme of the book is strictly mathematical, some of the stories are about people who cannot strictly be called mathematicians such as: Bertrand Russell, Alfred North Whitehead, and Albert Einstein along with stories about mathematicians: Erdő s, Doob, Besicovitch, Atiyah, Wiener, Mary Ellen and Walter Rudin, Pólya, Halmos, Littlewood, and many more legendary mathematicians.

232 pp., 2002 | ISBN: 978-0-88385-539-3 | Paperbound
List: $39.00 | **MAA Member: $31.00** | **Catalog Code: APC/YD09**

Volume 2 of "Mathematical Apocrypha."

Mathematical Apocrypha Redux

More Stories and Anecdotes of Mathematicians and the Mathematical

Steven G. Krantz

Spectrum

A companion to **Mathematical Apocrypha**, this second volume of anecdotes, stories, quips, and ruminations about mathematics and mathematicians is sure to please. It differs from other books of its type in that many of the stories are from the twentieth century and many about currently living mathematicians. A number of the best stories come from the author's first-hand experience. The writing is lively, engaging, and informative. There are stories the reader may wish to share with students and colleagues, friends, and relatives.

300 pp., 2005 | ISBN: 978-0-88385-554-6 | Paperbound
List: $45.95 | **MAA Member: $36.95** | **Catalog Code: APX/YD09**

Historical Modules for the Teaching and Learning of Mathematics

Victor Katz & Karen Dee Michalowicz, Editors

Classroom Resource Materials

On CD for both the Macintosh and PC. Requires Acrobat Reader 4.0 or later.

These eleven historical modules are collections of lesson materials designed to demonstrate the use of the history of mathematics in the teaching of mathematics. They have been written by teams of college and high school teachers and have been field tested in a variety of situations. The materials can fit many different types of objectives and can be used in a variety of mathematics classes, from pre-algebra through calculus. The eleven modules are: Archimedes; Combinatorics; Exponentials and Logarithms; Functions; Geometric Proof; Lengths, Areas, and Volumes; Linear Equations; Negative Numbers; Polynomials; and Statistics and Trigonometry.

CD, 2005 | ISBN: 978-0-88385-741-0
List: $48.00 | **MAA Member: $38.50** | **Catalog Code: HMO/YD09**

R. L. Moore

Mathematician & Teacher

John Parker

Spectrum

Parker presents Moore's life in detail, including origins of the Moore method, placing Moore very much in the developing American mathematics scene. A rich and engaging tale, the book is foremost an American life and Parker is at his best in these details.... This is a welcome addition to the growing stock of 20th-Century history. Highly recommended.

—CHOICE, J. McCleary, Vassar College

R. L. Moore: Mathematician & Teacher presents a full and frank biography of a mathematician recognized as one of the principal figures in the 20th Century progression of the American school of point set topology.

380 pp., 2005 | ISBN: 978-0-88385-550-8 | Hardbound
List: $53.95 | **MAA Member: $43.00** | **Catalog Code: MBIO/YD09**

Musings of the Masters

An Anthology of Mathematical Reflections

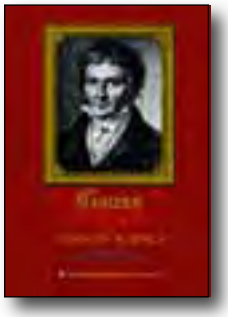
Raymond G. Ayoub, Editor

Spectrum

The essays included in this book are as thoughtful and deep as you would expect from authors of this stature. I would recommend this book to anyone interested in the philosophical thoughts of great mathematicians. I would also recommend it to non-mathematicians who are curious about how mathematicians think about themselves and their discipline. —Annalisa Crannell, *MAA Online*

The articles span roughly a century in time and a wide range in subject. They are by mathematicians acknowledged by their peers as outstanding creators whose work has added richly to the discipline. Each article is preceded by a brief biographical sketch of the author and a brief indication of the content.

288 pp., 2004 | ISBN: 978-0-88385-549-2 | Hardbound
List: $53.95 | **MAA Member: $43.95** | **Catalog Code: MUM/YD09**



Gauss : Titan of Science

G. Waldo Dunnington with additional material by Jeremy Gray

Reprinted from the 1955 Edition.

Spectrum

Dunnington is back—and how! ... All of it is great fun, even if like me, the reader is a huge fan of Gauss rather than a real historian of mathematics or science .... What comes through most clearly in this wonderful and well-written book is Dunnington's deep interest in and profound respect for Gauss, a human being. Gauss takes on a genuine human personality, not caricatured, but eminently believable. —Michael Berg, *MAA Online*

602 pp., 2004 | ISBN: 978-0-88385-547-8 | Hardbound
List: $58.00 | **MAA Member: $46.95** | **Catalog Code: GAU/YD09**

A Tour Through Mathematical Logic

Textbook Supplement

Robert S. Wolf

Can be used for supplemental reading for courses in most branches of the foundations of mathematics. Also suitable for a text for courses in mathematical logic and/or set theory, or for individual reading.

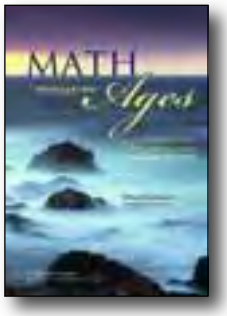
Carus Monographs

This book is a well-conceived and well-executed attempt to explain the entire field of mathematical logic to people who have not spent several years in graduate school studying that difficult and abstract subject.
—Michael Beeson, *American Mathematical Monthly*

This book provides a tour through the main branches of the foundations of mathematics. It contains chapters covering elementary logic, basic set theory, recursion theory, Gödel's (and others') incompleteness theorems, model theory, independence results in set theory, nonstandard analysis, and constructive mathematics. In addition, this monograph discusses several topics not normally found in books of this type, such as fuzzy logic, nonmonotonic logic, and complexity theory. The book is actually quite suitable for use as a text at the university level (undergraduate or graduate), provided that the instructor is willing to provide supplementary material from time to time.

408 pp., 2005 | ISBN: 978-0-88385-036-7 | Hardbound
List: $60.95 | **MAA Member: $48.50** | **Catalog Code: CAM-30/YD09**

Instructor's Manual available with adoption orders.



BESTSELLER –
Winner of the Beckenbach Book Prize

Math through the Ages

A Gentle History for Teachers and Others

William B. Berlinghoff & Fernando Q. Gouvêa

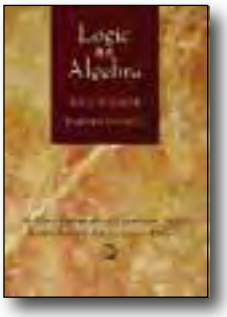
MAA Textbooks

Expanded Edition jointly published by the MAA and Oxton House Publishing.

Can be used as a history of mathematics text, as a liberal arts mathematics text, or as part of the preparation of future mathematics teachers. It should be on the shelf of anyone interested in the history of math.

Where did math come from? Who thought up all those algebra symbols, and why? What's the story behind ... negative numbers? ... the metric system? ... quadratic equations?... sine and cosine? The 25 independent sketches in **Math through the Ages** answer these questions and many others in an informal, easygoing style that's accessible to anyone who is curious about the history of mathematical ideas. Each sketch contains "Questions and Projects" to help you learn more about its topic and to see how its main ideas fit into the bigger picture of history. The 25 short stories are preceded by a 56-page bird's-eye overview of the entire panorama of mathematical history, a whirlwind tour of the most important people, events, and trends that shaped the mathematics we know today. "What to Read Next" and reading suggestions after each sketch provide starting points for readers who want to pursue a topic further.

288 pp., 2004 | ISBN: 978-0-88385-736-6 | Hardbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: MEX/YD09**



Logic as Algebra

Paul Halmos & Steve Givant

Dolciani

The book reads like an essay. This is not to say the presentation is not rigorous. It is. Details are presented when necessary to convey the ideas, but without overwhelming readers. The presentation is crisp and lucid yet informal.... The book is directed towards a general (mathematically literate) audience with an interest in modern logic.... The book is a joy to read and should become a classic. —Steve Comer, *Journal of Symbolic Logic*

152 pp., 1998 | ISBN: 978-0-88385-327-6 | Paperbound
List: $36.00 | **MAA Member: $28.95** | **Catalog Code: DOL-21/YD09**

Sherlock Holmes in Babylon and Other Tales of Mathematical History

Marlow Anderson, Victor Katz, & Robin Wilson, Editors

Spectrum

It is helpful to have this particular group of well-written and lively nuggets from the history of mathematics in one location. Overall, the book will prove provocative to students, instructors (both secondary and collegiate), scholars, and interested nonexperts. Highly recommended. —S. J. Colley, *CHOICE*

This book is a collection of 44 articles on the history of mathematics, published in MAA journals over the past 100 years. Each section is preceded by a Foreword, in which the articles are put into historical context, and followed by an Afterword, in which they are reviewed in the light of current historical scholarship.

420 pp., 2004 | ISBN: 978-0-88385-546-1 | Hardbound
List: $56.95 | **MAA Member: $45.95** | **Catalog Code: SHB/YD09**

Archimedes

What Did He Do Besides Cry Eureka?

Sherman Stein

Classroom Resource Materials

Stein discusses Archimedes' significant discoveries in an informal manner accessible to anyone who has had high school algebra.... Great diagrams enrich the text and its mathematical arguments. Highly recommended to anyone interested in mathematics and its history, as it is eye-opening and a great read. —*CHOICE*

Many people have heard of two things about Archimedes: he was the greatest mathematician of antiquity and he ran naked from his bath crying, "Eureka, eureka!" Few of us, layperson or mathematician, are familiar with the accomplishments on which his reputation rests. This book answers the question by describing in detail his astonishing accomplishments: how he developed the theory of the lever and the center of gravity; how he used the center of gravity to study whether a floating object would tip over; how he summed a geometric series and the squares; and how he found the volume and surface area of a sphere. His ability to do so much with the few tools at his disposal is astonishing.

168 pp., 1999 | ISBN: 978-0-88385-718-2 | Paperbound
List: $35.50 | **MAA Member: $28.50** | **Catalog Code: ARC/YD09**

Numbers: Rational and Irrational

Ivan Niven

Anneli Lax NML

A fine job of presenting the materials at a level which is attainable for the intended reading public. —*The Mathematics Teacher*

A superb development that starts with the natural numbers and carries the reader through the rationals and their decimal representations to algebraic numbers and then to the real numbers. Along the way, you will see characterizations of the rationals and of certain special (Liouville) transcendental numbers. This material is basic to all of algebra and analysis.

Professor Niven's book may be read with profit by interested high school students as well as by college students and others who want to know more about the basic aspects of pure mathematics.

140 pp., 1961 ISBN: 978-0-88385-601-7 Paperbound
List: $29.95 MAA Member: $23.95 Catalog Code: NML-01/YD09

!aha!

A Two-volume Collection

aha! Insight and aha! Gotcha

Martin Gardner

Spectrum

aha! Insight and **aha! Gotcha** are here combined as a single volume. The ***aha!*** books, as they are referred to by fans of the author Martin Gardner, contain 144 wonderful puzzles from the reigning king of recreational mathematics. In this combined volume, you will find puzzles ranging over geometry, logic, probability, statistics, number, time, combinatorics, and word play. Gardner calls these puzzles ***aha!*** problems. He explains that ***aha!*** problems "seem difficult, and indeed are difficult if you go about trying to solve them in traditional ways. But if you can free your mind from standard problem solving techniques, you may be receptive to an ***aha!*** reaction that leads immediately to a solution. Don't be discouraged if, at first, you have difficulty with these problems.

380 pp., 2006 ISBN: 978-0-88385-551-5 Hardbound
List: $52.95 MAA Member: $43.00 Catalog Code: AHA/YD09

Hesiod's Anvil

Falling and Spinning Through Heaven and Earth

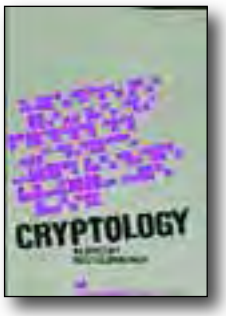
Andrew J. Simoson

Dolciani

Textbook Supplement

This book is about how poets, philosophers, storytellers, and scientists have described motion, beginning with Hesiod, a contemporary of Homer, who imagined that the expanse of heaven and the depth of hell was the distance that an anvil falls in nine days. This book is aimed at students who have finished a year-long course in calculus, but it can be used as a supplemental text in calculus II, vector calculus, linear algebra, differential equations, and modeling. It blends with equal voice romantic whimsy and derived equations, and anyone interested in mathematics will find new and surprising ideas about motion and the people who thought about it.

324 pp., 2007 ISBN: 978-0-88385-336-8 Hardbound
List: $56.95 MAA Member: $45.95 Catalog Code: DOL-30/YD09



Cryptology

Albrecht Beutelspacher

Spectrum

The book is a real treat. We need more books like this, crafted by expert hands yet crafted so that the general reader can enjoy them.
—Institute of Combinatorics and Its Applications

How can messages be transmitted secretly? How can one guarantee that the message arrives safely in the right hands exactly as it was transmitted?

Cryptology—the art and science of "secret writing"—provides ideal methods to solve these problems of data security.

176 pp., 1994 ISBN: 978-0-88385-504-1 Paperbound
List: $44.00 MAA Member: $35.50 Catalog Code: CRYPT/YD09

Selected by *Choice* magazine as an Outstanding Academic Book.

Martin Gardner's Mathematical Games

The entire collection of his *Scientific American* columns on one CD.

Spectrum

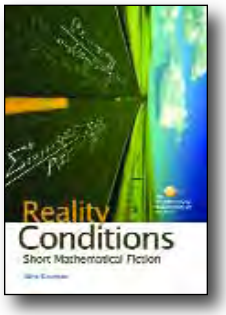
Martin Gardner's "Mathematical Games" column ran in *Scientific American* from 1956 to 1986. In these columns Gardner introduced hundreds of thousands of readers to the delights of mathematics and of puzzles and problem solving. His column broke such stories as Rivest, Shamir, and Adelman on public-key cryptography, Mandelbrot on fractals, Conway on *Life*, and Penrose on tilings. He enlivened classic geometry and number theory and introduced readers to new areas such as combinatorics and graph theory.

System Requirements

Windows: Intel® Pentium® processor; Microsoft® Windows 98, or Windows Millennium, Windows NT 4.0 (Service Pack 6), Windows 2000 (Service Pack 2), Windows XP

Macintosh: Power PC G3 processor; Mac OS X v. 10.2.2–10.3

On CD-ROM, 2005 ISBN: 978-0-88385-545-4
List: $67.95 MAA Member: $54.95 Catalog Code: TDG/YD09



Reality Conditions

Short Mathematical Fiction

Alex Kasman

Spectrum

Where can you . . .

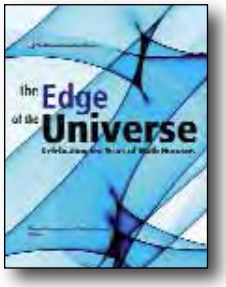
. . . hear an old man in a nursing home tell of how he disproved Goldbach's Conjecture as part of an undergraduate research project?

. . . get inside the mind of James Clerk Maxwell as he discovers electromagnetic waves?

. . . witness the 19th century's greatest mathematician finally get the credit she was denied by sexism and murder?

Only in the fictional world of **Reality Conditions**, a collection of short stories that span a variety of genres, but have mathematics as a common central theme. Each story is a mathematical journey designed to entertain, educate, and tantalize.

260 pp., 2005 ISBN: 978-0-88385-552-2 Paperbound
List: $33.95 MAA Member: $27.95 Catalog Code: RCO/YD09



The Edge of the Universe

Celebrating Ten Years of *Math Horizons*

Deanna Haunsperger & Stephen Kennedy, Editors

Spectrum

Beautifully printed with 24 pages of full-color images. A must for all math clubs.

Math Horizons is a magazine that celebrates the people and ideas which are mathematics. Containing the editors' selection from the first ten years of the magazine's existence, this volume features exquisite expositions of mathematics accessible at the level of an undergraduate or advanced high school student. Broad and appealing, the coverage also includes fiction with mathematical themes; literary, theatrical, and cinematic criticism; humor; history; and social history. Mathematics is shown as a human endeavor through biography and interviews of mathematicians and users of mathematics including artists, writers, and scientists. The puzzles, games, and activities throughout make it a valuable resource for student math clubs.

320 pp., 2006 | ISBN: 978-0-88385-555-3 | Hardbound
List: $59.95 | **MAA Member: $49.95** | **Catalog Code: BOMH/YD09**

Selected by Choice Magazine as an Outstanding Academic Book

Solve This

Math Activities for Students and Clubs

James Tanton

Classroom Resource Materials

Textbook Supplement

Suitable for use as a liberal arts mathematics course in college or secondary school or for use in courses for primary and secondary math teachers.

Mathematics can be exciting and fun for all students, especially when exploring the myriad activities and problems found in this book.... Get the book, use it, and help students have fun doing interesting mathematics. —*CHOICE*

This book irresistibly tempts the reader to embark on a journey of investigation and discovery. Elementary, middle, and high school students, college students and mathematics majors, faculty from all departments and professional mathematicians, as well as self-described math phobics have all enjoyed these activities and have all attained a sense of satisfaction and accomplishment from them. Mathematics educators will find this an invaluable source of fresh and innovative approaches to topics in mathematics.

240 pp., 2001 | ISBN: 978-0-88385-717-5 | Paperbound
List: $43.50 | **MAA Member: $35.50** | **Catalog Code: HOM/YD09**

The Math Chat Book

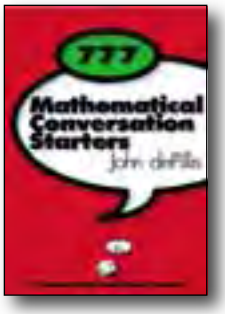
Frank Morgan

Spectrum

An ideal gift for anyone who enjoys the fun of mathematics—buy a copy for a favorite teacher, friend, or for yourself.... A great present for a young person interested in math.

This book grew out of Frank Morgan's live, call-in Math Chat TV Show and biweekly "Math Chat" column in *The Christian Science Monitor*. The questions, comments, and even the answers come largely from the callers and readers themselves.

124 pp., 2000 | ISBN: 978-0-88385-530-0 | Paperbound
List: $26.50 | **MAA Member: $21.50** | **Catalog Code: MCH/YD09**



777 Mathematical Conversation Starters

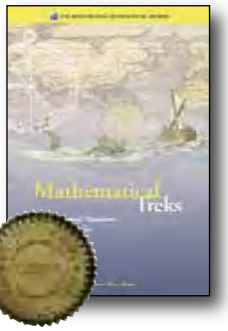
John dePillis

Spectrum

It is a honey of a book.... It is an excellent Xmas present for graduate students to give their thesis advisers (or vice-versa). It is a gold mine for quips for after-dinner speeches. College presidents should consult it before making their decennial site visits to their math department. ***777* Mathematical Conversation Starters** *could relieve mathematical melancholy better than Prozac. It even poses unsolved mathematical problems that neither you nor the science reporters for The New York Times have heard about.* —Philip J. Davis, *SIAM News*

368 pp., 2002 | ISBN: 978-0-88385-540-9 | Paperbound
List: $47.95 | **MAA Member: $38.95** | **Catalog Code: MCS/YD09**

Selected by Choice Magazine as an Outstanding Academic Book



Mathematical Treks

From Surreal Numbers to Magic Circles

Ivars Peterson

Spectrum

In 1995, Ivars Peterson and his colleagues at *Science News* began planning the magazine's debut on the Internet. Ivars Peterson, who had long admired Martin Gardner's "Mathematical Games" columns in *Scientific American*, decided to write a weekly on-line column about various aspects of mathematics. The MAA offered to post these articles on the MAA website, which became the immensely popular "Math Trek" column in MAA Online (http://www.maa.org). There is something here for everyone, from the professional mathematician, to the student who enjoys doing mathematics, to the lay person who has interest in things mathematical.

180 pp., 2002 | ISBN: 978-0-88385-537-9 | Paperbound
List: $33.95 | **MAA Member: $27.95** | **Catalog Code: TRK/YD09**

The Magic Numbers of the Professor

Owen O'Shea & Underwood Dudley

A fascinating collection of numerical curiosities and wonders.

Spectrum

The Magic Numbers of the Professor reveals astonishing details about the year 1776, the year of American Independence. It contains discussions on prime numbers, gives some wonderful number patterns, and reveals many other eye-opening properties of numbers. It asks, for instance, if you know in how many different ways a US dollar can be changed. The Professor gives the answer to this and other currency questions. The number of the Beast, 666, is discussed as well, as are many new equations involving that famous number—all appearing here for the first time. And for those fascinated by games and gambling, a number of curious proposition bets involving dice, darts, and playing cards, and various mathematical puzzles are scattered throughout this singularly entertaining book.

184 pp., 2007 | ISBN: 978-0-88385-557-7 | Hardbound
List: $41.95 | **MAA Member: $31.95** | **Catalog Code: MNOP/YD09**

If you know a student preparing for the AMC Exams be sure they have a copy of this book!

First Steps for Math Olympians

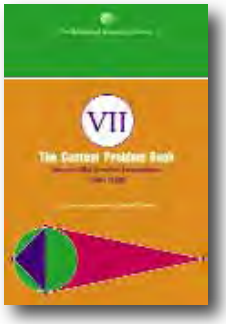
Using the American Mathematics Competitions

J. Douglas Faires

Problem Books

This book will promote interest in mathematics by providing students with the tools to attack problems that occur on mathematical problem-solving exams, and specifically to level the playing field for those who do not have access to the enrichment programs that are common at the top academic high schools. The book can be used either for self-study or to give people who want to help students prepare for mathematics exams easy access to topic-oriented material and samples of problems based on that material. This is useful for teachers who want to hold special sessions for students, but it is equally valuable for parents who have children with mathematical interest and ability.

320 pp., 2006 | ISBN: 978-0-88385-824-0 | Hardbound
List: $51.50 | **MAA Member: $41.50** | **Catalog Code: PSC/YD09**



The Contest Problem Book VII

American Mathematics Competitions 1995–2000 Contests

Harold Reiter

Problem Books

Contest Problem Book VII chronicles 275 problems from the American Mathematics Competitions (AMC 12 and AMC 10) for the years 1995 through 2000, including the 50th Anniversary AHSME issued in 1999. Twenty-three additional problems with solutions are included. A Problem Index classifies the 275 problems in the following subject areas: Algebra, Complex Numbers, Discrete Mathematics (including Counting Problems), Logic, and Discrete Probability, Geometry (including Three Dimensional Geometry), Number Theory (including Divisibility, Representation, and Modular Arithmetic), Statistics, and Trigonometry.

200 pp., 2006 | ISBN: 978-0-88385-821-9 | Paperbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: CB7/YD09**

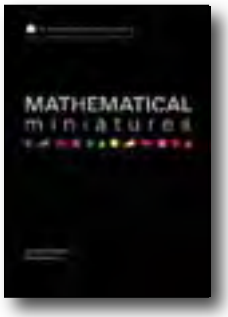
Mathematical Adventures for Students and Amateurs

David F. Hayes & Tatiana Shubin, Editors

Spectrum

How should you encode a message to an extraterrestrial? What do frogs and powers of 2 have in common? How many faces does the Stella Octangula have? Is a plane figure of constant diameter a circle, and what has this to do with NASA? 210 = 5 x 6 x 7 = 14 x 15, so just how many numbers can be the product of both two and of three consecutive integers? Is there any such thing as a truly correct map? What patterns are possible in juggling? What do all of these questions have in common? They, and many others, are answered in this book.

304 pp., 2004 | ISBN: 978-0-88385-548-5 | Paperbound
List: $44.95 | **MAA Member: $36.00** | **Catalog Code: ASM/YD09**



Mathematical Miniatures

Svetoslav Savchev & Titu Andreescu

Anneli Lax NML

There are many books about mathematical problems and competitions, but **Mathematical Miniatures** *has a wider remit and is more readable than most.*—Victor Bryant, *New Scientist*

This is a gem of a book. The authors, who are very experienced in the posing and setting of problems for bright young mathematicians, provide access to a wide variety of clever solutions to a range of mathematical problems...The text is addictive and hard to put down, inspiring and intriguing. —John H. Mason, *Mathematical Reviews*

230 pp., 2003 | ISBN: 978-0-88385-645-1 | Paperbound
List: $39.95 | **MAA Member: $31.00** | **Catalog Code: NML-43/YD09**

Mathematical Diamonds

Ross Honsberger

Dolciani

This book includes much to appreciate. I have scribbled many notes in my copy which is a good indication of its value....
—Mike Rosenthal, *The Mathematics Teacher*

Ross Honsberger has done it again. He has brought together another wonderful collection of elementary mathematical problems and their solutions that reflect the beauty of mathematics. The problems abound in striking surprises and brilliant ideas. Many come from mathematical journals. Others come from various mathematical competitions.

256 pp., 2003 | ISBN: 978-0-88385-332-0 | Paperbound
List: $42.50 | **MAA Member: $34.00** | **Catalog Code: DOL-26/YD09**

The Inquisitive Problem Solver

Paul Vaderlind, Richard Guy & Loren Larson

Problem Books

Contains a magnificent collection of mathematical problems that has been assembled by three distinguished mathematicians...
—Gus Mavrigian, *The Mathematics Teacher*

The Inquisitive Problem Solver is a collection of 256 mathematical miniatures composed to stimulate and entertain. Accessible to a general audience, they also provide a setting rich in mathematical themes. Most of the problems require no special knowledge, others only minimal algebra, but all require clear thinking and insight.

300 pp., 2002 | ISBN: 978-0-88385-806-6 | Paperbound
List: $39.95 | **MAA Member: $31.00** | **Catalog Code: IPS/YD09**

The William Lowell Putnam Mathematical Competition 1938–1964

Problems and Solutions

A. M. Gleason, R. E. Greenwood & L. M. Kelly, Editors

Problem Books

Problemists the world over, including all past and future Putnam Competitors, will revel in mastering the difficulties posed by this collection of problems from the first 25 William Lowell Putnam Competitions. Solutions to all 347 problems are given. In some cases multiple solutions are included, some that contestants could reasonably be expected to find under examination conditions, and others that are more elegant or utilize more sophisticated techniques. Valuable references and historical comments on many of the problems are presented.

673 pp., 1980 ISBN: 978-0-88385-462-4 Paperbound issued 2003
List: $56.00 MAA Member: $45.00 Catalog Code: PB1/YD09

The William Lowell Putnam Mathematical Competition 1965–1984

Problems and Solutions

Gerald L. Alexanderson, Leonard F. Klosinski & Loren C. Larson, Editors

Problem Books

This book, the second of the Putnam Competition volumes, contains problems with their solutions for the years 1965–1984. Additional solutions are presented for many of the problems.

Included is an essay on recollections of the first Putnam Exam by Herbert Robbins, as well as appendices listing the winning teams and students from 1965 through 1984. This volume offers the problem solver an enticing sample of challenging problems and their solutions.

168 pp., 1985 ISBN: 978-0-88385-463-1 Paperbound issued 2003
List: $35.00 MAA Member: $28.00 Catalog Code: PB2/YD09

The William Lowell Putnam Mathematical Competition 1985–2000

Problems, Solutions and Commentary

Kiran S. Kedlaya, Bjorn Poonen & Ravi Vakil

Problem Books

This third volume of Putnam Problems is unlike the first two Putnam volumes, and unlike virtually every other problem-based book, in that it places the problems in the context of important mathematical themes. The authors highlight connections to other problems, to the curriculum, and to more advanced topics. The best problems contain kernels of sophisticated ideas related to important current research, and yet the problems are accessible to undergraduates.

In addition to problems and solutions, the book contains: a hint to each problem, separate from the full solution; background information about the competition; a list of winning individuals and teams, with current information about the career paths of winners, and a topic index.

354 pp., 2002 ISBN: 978-0-88385-807-3 Hardbound
List: $56.00 MAA Member: $45.00 Catalog Code: PB3/YD09

THE MAA CONTEST PROBLEM BOOKS

Featuring challenging problems in algebra, geometry, trigonometry, logic, number theory, and combinatorics.

The Contest Problem Book V

American High School Mathematics Examinations & American Invitational Mathematics Examinations 1983–1988

George Berzsenyi & Stephen B. Maurer

Anneli Lax NML

Mathematics teachers and students at both high school and college levels will find this collection a useful resource and a welcome addition to the ongoing series. Also of great use to teachers are the indexed classification of problems by types and the excellent bibliography of problem solving resources. —*CHOICE*

308 pp., 1997 ISBN: 978-0-88385-640-6 Paperbound
List: $39.95 MAA Member: $29.95 Catalog Code: NML-38/YD09

The Contest Problem Book VI

American High School Mathematics Examinations 1989–1994

Leo J. Schneider

Anneli Lax NML

The Contest Problem Book VI chronicles the high school mathematics competitions sponsored by the Mathematical Association of America. It contains 180 challenging problems from the six years of the American High School Mathematics Examinations (AHSME), 1989 through 1994, as well as a selection of other problems. Some of the techniques shown to solve the problems in the book are appearing in print for the first time. A Problems Index classifies the 180 problems in the book into subject areas: algebra, complex numbers, discrete mathematics, number theory, statistics, and trigonometry.

232 pp., 2000 ISBN: 978-0-88385-642-0 Paperbound
List: $34.00 MAA Member: $28.00 Catalog Code: NML-40/YD09

See pages 37–38 for an expanded listing of the MAA Contest Problem Books.

BUY ALL THREE PUTNAM BOOKS AND SAVE!
Catalog Code: PTA/YD09 • List: $132.00 • MAA Member: $107.00

Teaching Statistics Using Baseball

James Albert

Classroom Resource Materials

Textbook

Unlike some efforts to teach mathematics using an athletics theme, Albert's book is a success. The work is a high quality elementary statistical concepts resource. Ideas are accurately presented, and explanations are outstanding, with Albert carefully crafting prose to suit beginners. It far surpasses many books at this level. —R. Lee, *CHOICE*

There is an active effort by people in the baseball community to learn more about baseball performance and strategy by the use of statistics. This book illustrates basic methods of data analysis and probability models by means of baseball statistics collected on players and teams. Students often have difficulty learning statistical concepts since they are explained using examples that are foreign to the students. The idea of the book is to describe statistical thinking in a context (that is, baseball) that will be familiar and interesting to students.

304 pp., 2003 | ISBN: 978-0-88385-727-4 | Paperbound
List: $56.95 | **MAA Member: $45.50** | **Catalog Code: TSB/YD09**

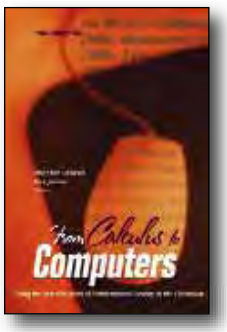
Innovations in Teaching Statistics

Joan B. Garfield, Editor

MAA Notes

Innovations in Teaching Statistics is a book of stories about teaching statistics. These stories are told by fourteen different instructors of innovative statistics courses, who demonstrate that learning statistics can be a positive, meaningful, and even exciting experience. Despite the prevailing opinion that statistics courses are dull and difficult for students, these stories paint quite a different picture. In the authors' classes, students are engaged in learning, are empowered to do statistics, and appreciate the instructional methods of their teachers. The instructors profiled in this book are inspiring, dedicated teachers who have devoted considerable effort to creating courses and materials that enable students to successfully learn statistics.

150 pp., 2005 | ISBN: 978-0-88385-175-3 | Paperbound
List: $49.95 | **MAA Member: $43.00** | **Catalog Code: NTE-65/YD09**



From Calculus to Computers

Using the Last 200 Years of Mathematics History in the Classroom

Amy Shell-Gellasch & Richard Jardine, Editors

MAA Notes

From Calculus to Computers is a resource for undergraduate teachers that provides ideas and materials for immediate adoption in the classroom and proven examples to motivate innovation by the reader. Contributions to this volume are from historians of mathematics and college mathematics instructors with years of experience and expertise in these subjects.

250 pp., 2005 | ISBN: 978-0-88385-178-4 | Paperbound
List: $51.50 | **MAA Member: $41.50** | **Catalog Code: NTE-68/YD09**

Teaching Statistics

Resources for Undergraduate Instructors

Thomas L. Moore, Editor

MAA Notes

Jointly published with the American Statistical Association.

An excellent instructor's manual for anyone who teaches statistics on the undergraduate or secondary school levels, this essential handbook offers not only a collection of original readable and informative chapters, but also provides the reader with projects that have been successfully tested by teachers. Highly recommended. —*CHOICE*

250 pp., 2000 | ISBN: 978-0-88385-162-3 | Paperbound
List: $44.95 | **MAA Member: $36.00** | **Catalog Code: NTE-52/YD09**

Innovative Approaches to Undergraduate Mathematics Courses Beyond Calculus

Richard J. Maher, Editor

MAA Notes

This book describes innovative approaches that have been used successfully by a variety of instructors in the undergraduate mathematics courses that follow calculus. These approaches are designed to make upper division mathematics courses more interesting, more attractive, and more beneficial to our students. The authors of the articles in this volume show how this can be done while still teaching mathematics courses. These approaches range from various classroom techniques to novel presentations of material to discussing topics not normally encountered in the typical mathematics curriculum. This book is meant for the instructor. It will be very useful to anyone teaching a course beyond first year calculus.

200 pp., 2005 | ISBN: 978-0-88385-177-7 | Paperbound
List: $51.50 | **MAA Member: $41.50** | **Catalog Code: NTE-67/YD09**

Leading the Mathematical Sciences Department

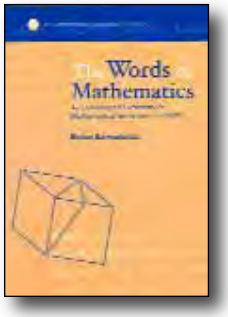
A Resource for Chairs

Tina Straley, Marcia Sward, & Jon Scott, Editors

MAA Notes

Leading the Mathematical Sciences Department: A Resource for Chairs provides insights and advice from mathematical science department chairs and administrators. The focus is on leadership rather than the technical details of management. The *Wisdom of Practice* contains advice from presidents, vice-presidents, provosts, deans, and chairs. The *Case Studies* are scenarios based upon real situations encountered by chairs. Some may sound very familiar. There are no answers, instead the cases are intended for you to think about how you would handle the situation. The *Issues* papers cover topics that chairs told us they wanted to know about and present strategies by the writers of the papers.

146 pp., 2005 | ISBN: 978-0-88385-174-6 | Paperbound
List: $51.95 | **MAA Member: $41.95** | **Catalog Code: NTE-64/YD09**



The Words of Mathematics

An Etymological Dictionary of Mathematical Terms Used in English

Steven Schwartzman

Spectrum

Mathematical dictionaries rarely explain where any of the terms came from, and then, only briefly.... This is the first book that combines a mathematical dictionary and an etymological dictionary and, as such, is recommended for any library covering the field of mathematics. —*American Reference Books Annual*

This unique dictionary discusses the etymologies of 1,500 mathematical terms. The product of serious scholarship, it is nevertheless comprehensible and enjoyable to read.... A useful work for libraries serving programs in mathematics and linguistics, and one that will interest readers fascinated by word origin. —*CHOICE*

262 pp., 1994 | ISBN: 978-0-88385-511-9 | Paperbound
List: $49.95 | **MAA Member: $39.95** | **Catalog Code: WORDS/YD09**

Writing Projects for Mathematics Courses

Crushed Clowns, Cars and Coffee to Go

Annalisa Crannell, Gavin LaRose, Thomas Ratliff & Elyn Rykken

Classroom Resource Materials

Textbook Supplement

I would recommend **Writing Projects** *to every instructor, but especially to those who are not assigning writing projects in their classes: There are plenty of projects to use as-is, and plenty of advice for creating effective new ones. Experienced instructors will find that this book is a source of new projects, possibly requiring a new writing style. Overall,* **Writing Projects** *is a valuable resource for implementing the goals of "Writing Across the Curriculum."*
—Susan Palmer Slattery, *MAA Online*

128 pp., 2004 | ISBN: 978-0-88385-735-9 | Paperbound
List: $35.00 | **MAA Member: $28.00** | **Catalog Code: WPM/YD09**

War Stories from Applied Math

Undergraduate Consultancy Projects

Robert Fraga, Editor

MAA Notes

War Stories from Applied Math is a source book for teachers interested in setting up programs where students work on problems which originate in commerce, industry, and local government. It is also ideal for teachers of modeling courses, and for teachers preparing students for modeling competitions.

This book deals with issues involved in setting up and running a program which allows undergraduate students to work on problems from real world sources. A number of practitioners share their experiences with the reader.

160 pp., 2007 | ISBN: 978-0-88385-181-4 | Paperbound
List: $48.95 | **MAA Member: $39.50** | **Catalog Code: NTE-71/YD09**

The Great π/*e* Debate

Colin Adams & Thomas Garrity

DVD

Colin Adams and Thomas Garrity settle once and for all the burning question that has plagued humankind from time immemorial: "Which is the better number, *e* or π?" In what could be the most important debate of the millennium, Williams College Professors Adams and Garrity use any means within their powers, legal or otherwise, to prove their point. Moderated by Edward Burger, our debaters challenge orthodoxy, brazenly flaunt convention and behave rather badly in their attempts to convince the audience of the absolutely ridiculous nature of their adversary's arguments. This event may have the historical significance of the Edict of Nantes, the Yalta conference, or the Kennedy–Nixon debates. Or perhaps not. But just in case, you don't want to miss it.

40 minutes, 2007 | ISBN: 978-0-88385-900-1 | Color DVD
List: $26.95 | **MAA Member: $21.95** | **Catalog Code: PIE/YD09**

Teaching First

A Guide for New Mathematicians

Thomas W. Rishel

MAA Notes

This original and well-thought out handbook covers everything a beginning college-level mathematics teacher might need to know. I highly recommend it both as a required book and as an addition to one's personal library.
—Pamela Lasher, *The Mathematics Teacher*

The book is written for the mathematics TA or young faculty member who may be wondering just where and how to start. Rishel opens their eyes to pitfalls they may never have considered, and offers advice on balancing an obligation to the student with an obligation to mathematics. Throughout he provides answers to seemingly daunting questions shared by most new TAs, such as how to keep a classroom active and lively; how to prepare writing assignments, tests, and quizzes; how exactly to write a letter of recommendation; and how to pace, minute by minute, the "mathematical talks" one will be called upon to give.

150 pp., 2000 | ISBN: 978-0-88385-165-4 | Paperbound
List: $29.95 | **MAA Member: $24.95** | **Catalog Code: NTE-54/YD09**

Mathematics in Service to the Community:

Concepts and Models For Service-learning in the Mathematical Sciences

Charles Hadlock, Editor

MAA Notes

This book looks at the wide variety of ways in which math, statistics, and math education teachers have incorporated service-learning into their courses. These projects are not just stand-alone community service initiatives, but rather they specifically target the improvement of mathematics skills and insights of the college students in the courses with which they are associated. The book also speculates about heretofore untapped possibilities for service-learning, even including courses in pure mathematics.

272 pp., 2005 | ISBN: 978-0-88385-176-0 | Paperbound
List: $49.95 | **MAA Member: $41.00** | **Catalog Code: NTE-66/YD09**

MAA Videos Now in DVD Format

Mathematically Motivated Designs

A Lecture by Howard Eves

Howard Eves, the famed geometer historian of mathematics, discusses and illustrates designs that have resulted from the solution of great and beautiful problems of mathematics. A great video for math clubs.

60 minutes | ISBN: 978-0-88385-903-2 | Color DVD
List: $29.95 | **MAA Member: $24.95** | **Catalog Code: EVID/YD09**

A Conversation with Paul Halmos

In this candid interview, Halmos in his inimitable fashion talks about teaching, students, the value of experiment in teaching, calculus reform, the Moore Method, changes in teachers and students over the last 20 years, and personal reminiscences of famous mathematicians he has known. A must for all Halmos fans.

40 minutes | ISBN: 978-0-88385-904-9 | Color DVD
List: $24.95 | **MAA Member: $19.95** | **Catalog Code: HALMOS/YD09**

N Is a Number

A Portrait of Paul Erdős

This well-shot program is an excellent choice for mathematics students and others familiar with Erdős' accomplishments. —*Booklist*

I strongly believe that most high school students, science and mathematics teachers, and administrators will enjoy watching this film. I give it two thumbs up! —*The Mathematics Teacher*

A man with no home and no job, Paul Erdős was the most prolific mathematician who has ever lived. Universally revered among mathematicians, Erdős, who was born in Hungary in 1913, was a wandering genius who eschewed the traditional trappings of success, dedicating himself instead to inventing new problems and searching for their solutions. He inspired generations of mathematicians throughout the world with his insightful approach and the wry humor with which he discussed politics, death, and the cosmic struggle to uncover proofs hidden by the most stubborn of adversaries—God.

60 minutes | ISBN: 978-0-97245-818-8 | Color DVD
List: $45.95 | **MAA Member: $36.95** | **Catalog Code: NUMB/YD09**

MAA Classic DVDs

Let Us Teach Guessing

George Pólya

In a remarkable tour de force, Pólya shows us how to teach guessing. In this classic film he leads an undergraduate class to discover the number of parts into which 3-space is divided by five arbitrary planes.

60 minutes, 1966 | ISBN: 978-0-88385-905-6 | Color DVD
List: $29.95 | **MAA Member: $24.95** | **Catalog Code: LTG/YD09**

Challenge in the Classroom

A Documentary on R. L. Moore

In this film shot in his classroom, Moore passionately explains his method of teaching, which placed preeminent value on students discovering mathematics on their own. Moore also reflects on the beginnings of his own mathematical education in 1877.

55 minutes, 1966 | ISBN: 978-0-88385-906-3 | Color DVD
List: $29.95 | **MAA Member: $24.95** | **Catalog Code: RLM/YD09**

The MAA Calculus Film Project

in three parts on one DVD

Produced by the MAA in the late 60s, these films range in style from informational scripted graphics with hand-painted gels to humorous cartoons. Some present informal introductions to topics from calculus, others include precise, detailed investigations.

MAA Calculus Film Project - Part I

A Function Is a Mapping
Continuity of Mappings
Limit
I Maximize
Theorem of the Mean
Policeman

MAA Calculus Film Project – Part II

Newton's Method
The Definite Integral as a Limit
Fundamental Theorem of Calculus
What is Area?

MAA Calculus Film Project – Part III

Area Under a Curve
The Definite Integral
The Volume of a Solid of Revolution
Volume by Shells
Infinite Areas

180 minutes | ISBN: 978-0-88385-907-0 | B&W DVD
List: $69.95 | **MAA Member: $55.95** | **Catalog Code: CALC/123/YD09**

Project Mathematics! DVDs (No discounts given below the published price.)

Project MATHEMATICS! DVDs explore basic topics in high school mathematics in ways that cannot be done at the chalkboard or in a textbook. They bring mathematics to life with imaginative computer animation, live action, music, special effects, and a sense of humor. The DVDs were animated by James F. Blinn, and produced by Professor Tom M. Apostol at the California Institute of Technology in Pasadena, CA.

The Project Mathematics! videos are available in bilingual DVD format with 3 different titles grouped on each DVD.

DVD 1 contains the following 3 programs:

Similarity

Animation shows what happens to perimeters, areas, and volumes under scaling, with various applications from real life.

Workbook sold separately for $5.00
Catalog Code: SIMWOR/YD09 (for workbook)

The Theorem of Pythagoras

Several engaging animated proofs of the Pythagorean theorem are presented, with applications to real-life problems and to Pythagorean triples. The theorem is extended to 3-space, but does not hold for spherical triangles.

Workbook sold separately for $5.00
Catalog Code: TPYWO/YD09 (for workbook)

The Story of Pi

Animated sequences dissect a circular disk of radius *r* and transform it to a rectangle of base πr and altitude *r*. Animation shows how Archimedes estimated π using perimeters of approximating polygons. (24 minutes)

Workbook sold separately for $5.00
Catalog Code: PIWO/YD09 (for workbook)

Catalog Code: DVD-01/YD09 (for set of 3 DVDs)
List: $39.95

DVD 2 contains the following 3 programs:

Sines and Cosines, Part I

Sines and cosines occur as rectangular coordinates of a point moving on a unit circle, as graphs related to vibrating motion, and as ratios of sides of right triangles. They are related by reflection or translation of their graphs. Animation demonstrates the Gibbs phenomenon of Fourier series.

Workbook sold separately for $5.00
Catalog Code: SICOWO1/YD09 (for workbook)

Sines and Cosines, Part II

This video focuses on trigonometry, with special emphasis on the law of cosines and the law of sines, together with applications to The Great Survey of India. The history of surveying instruments is outlined, from Hero's dioptra to modern orbiting satellites.

Workbook sold separately for $5.00
Catalog Code: SICOWO2/YD09 (for workbook)

Sines and Cosines, Part III

Animation relates the sine and cosine of an angle with chord lengths of a circle, as explained in Ptolemy's Almagest. This leads to elegant derivations of addition formulas, with applications to simple harmonic motion.

Workbook sold separately for $5.00
Catalog Code: SICOWO3/YD09 (for workbook)

Catalog Code: DVD-02/YD09 (for set of 3 DVDs)
List: $39.95

DVD 3 contains the following 3 programs:

Polynomials

Animation shows how the Cartesian equation changes if the graph of a polynomial is translated or subjected to a vertical change of scale. Zeros, local extrema, and points of inflection are discussed.

Workbook sold separately for $5.00
Catalog Code: POLWO/YD09 (for workbook)

The Tunnel of Samos

This video describes a remarkable engineering work of ancient times: excavating a one-kilometer tunnel straight through the heart of a mountain, using separate crews that dug from the two ends and met in the middle. How did they determine the direction for excavation? The program gives Hero's explanation (ca. 60 A.D.), using similar triangles, as well as alternative methods proposed in modern times.

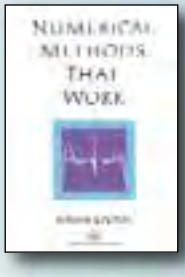
Workbook sold separately for $5.00
Catalog Code: TUNWO/YD09 (for workbook)

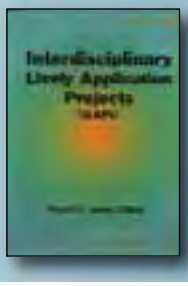
Early History of Mathematics

This video traces some of the landmark developments in the early history of mathematics, from Babylonian calendars on clay tablets produced 5000 years ago, to the introduction of calculus in the seventeenth century.

Workbook sold separately for $5.00
Catalog Code: HWO/YD09 (for workbook)

Catalog Code: DVD-03/YD09 (for set of 3 DVDs)
List: $39.95





Algebra

The Beginnings & Evolution of Algebra

Isabella Bashmakova & Galina Smirnova Translated from Russian by Abe Shenitzer with the editorial assistance of David A. Cox

SERIES: DOLCIANI

Catalog Code: DOL-23/YD09
196 pp., Paperbound, 2000
ISBN: 978-0-88385-329-0
List: $36.50 MAA Member: $29.50

Innovations in Teaching Abstract Algebra

Hibbard and Maycock, Editors

SERIES: MAA NOTES

An introduction to the wide range of new ideas that have been used to teach abstract algebra to undergraduates.

Catalog Code: NTE-60/YD09
136 pp., Paperbound, 2002
ISBN: 978-0-88385-171-5
List: $24.00 MAA Member: $19.95

Laboratory Experiences in Group Theory

Ellen Maycock

SERIES: CLASSROOM RESOURCE MATERIALS

A useful adjunct to lectures and homework for a first course in higher algebra. The accompanying diskette contains an efficient table checker ...The software is easy to use.
—Mathematical Reviews

Catalog Code: LABE/YD09
112 pp., Paperbound, 1996
ISBN: 978-0-88385-705-2
List: $22.95 MAA Member: $18.95

Linear Algebra Gems
Assets for Undergraduate Mathematics

David Carlson, Charles R. Johnson, & David C. Lay, Editors

SERIES: MAA NOTES

Catalog Code: NTE-59/YD09
342 pp., Paperbound, 2002
ISBN: 978-0-88385-170-8
List: $43.50 MAA Member: $34.50

Resources for Teaching Linear Algebra

David Carlson, et al., Editors

SERIES: MAA NOTES

Included are the recommendations of the Linear Algebra Curriculum Study Group with their core syllabus for the first course, and the thoughts of mathematics faculty who have taught linear algebra using these recommendations. It includes elucidation of these ideas, trenchant criticism of them, and a report on putting them into practice.

Catalog Code: NTE-42/YD09
306 pp., Paperbound, 1997
ISBN: 978-0-88385-150-0
List: $41.95 MAA Member: $31.95

Analysis

Inequalities from Complex Analysis

John P. D'Angelo

SERIES: CARUS

Takes the reader from the first properties of the complex numbers all the way to current research....Affords the undergraduate the pleasant opportunity to learn important basics by immediately seeing them fit together into something of beauty.
—D. V. Feldman, CHOICE

Catalog Code: CAM-28/YD09
280 pp., Hardbound, 2002
ISBN: 978-0-88385-033-6
List: $42.95 MAA Member: $32.95

Numerical Methods that Work

Forman Acton

SERIES: SPECTRUM

This book will appeal as a text. It should be in every library as a reference. *—CHOICE*

The book is divided into two parts, either of which could form the basis of a one-semester course in numerical methods.

Catalog Code: NMTW/YD09
560 pp., Paperbound, 1990
ISBN: 978-0-88385-450-1
List: $46.95 MAA Member: $37.95

A Panorama of Harmonic Analysis

Steven G. Krantz

SERIES: CARUS MONOGRAPHS

Steven Krantz is an expert author. His book is written in a clear style and there are many comments which make the text very readable.
—Mathematical Reviews

Steven Krantz's contribution is a first-class addition to this outstanding series.... ***A Panorama of Harmonic Analysis*** *is well-titled and well-placed in the Carus Monograph series.*
—Crux Mathematicorum

Catalog Code: CAM-27/YD09
368 pp., Hardbound, 1999
ISBN: 978-0-88385-031-2
List: $52.95 MAA Member: $42.95

A Primer of Real Functions

Ralph P. Boas, Jr. / Revised & updated by Harold P. Boas

A major revision of an MAA classic and perennial bestseller!

SERIES: MAA TEXTBOOKS

This is a revised, updated, and significantly augmented edition of a classic Carus Monograph (a bestseller for over 25 years) on the theory of functions of a real variable.

Catalog Code: CAM-13R/YD09
314 pp., Hardbound, 1996
ISBN: 978-0-88385-029-9
List: $49.95 MAA Member: $39.95

Applied Mathematics

Environmental Mathematics in the Classroom

B. A. Fusaro & P. C. Kenschaft, Editors

SERIES: CLASSROOM RESOURCE MATERIALS

Could serve as a resource for a capstone modeling course or as a treasure of real-world problems for a course that integrates applications. A must-read for those who are interested in modeling before they take calculus courses. —Robert Mayes, *The Mathematics Teacher*

Catalog Code: EMC/YD09
268 pp., Paperbound, 2003
ISBN: 978-0-88385-714-4
List: $58.00 MAA Member: $46.00

Interdisciplinary Lively Applications Projects (ILAPS)

David C. Arney, Editor

SERIES: CLASSROOM RESOURCE MATERIALS

The projects were genuinely interesting...I liked the book and any department looking for interesting sources of project work for students would be likely to find something worthwhile in it. —Stacy Langton, *MAA Online*

Catalog Code: ILAP/YD09
206 pp., Paperbound, 1997
ISBN: 978-0-88385-706-9
List: $25.95 MAA Member: $20.75

Mathematical Modeling in the Environment

Charles Hadlock

SERIES: MAA TEXTBOOKS

I love this book!... I strongly recommend this book both to mathematicians who want to acquaint their majors with some interesting and important applications and to those who want to develop the mathematical sophistication of students who are preparing for careers in environmental science or engineering.
—Mic Jackson, The American Mathematical Monthly

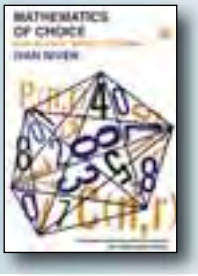
Catalog Code: ENV/YD09
312 pp., Paperbound, 1998
ISBN: 978-0-88385-709-0
List: $65.95 MAA Member: $52.95

Supplementary Material & Solutions Manual
For Mathematical Modeling in the Environment

Charles Hadlock

Catalog Code: EVS/YD09
150 pp., Paperbound, 1998
ISBN: 978-0-88385-713-7
List: $20.95 MAA Member: $16.95

BEST OF THE BACKLIST



When Topology Meets Chemistry

A Topological Look at Molecular Chirality

Erica Flapan

SERIES: OUTLOOKS

Catalog Code: TPC/YD09
250 pp., Paperbound, 2000
ISBN: 978-0-521664-82-0
List: $32.50 MAA Member: $26.00

Calculus

Resources for Calculus Collection—MAA Notes Series

Applications of Calculus

Philip D. Straffin, Jr., Editor

SERIES: MAA NOTES

Catalog Code: NTE-29/YD09
280 pp., Paperbound, 1993
ISBN: 978-0-88385-085-5
List: $45.50 MAA Member: $36.50

Calculus Problems for a New Century

Robert Fraga, Editor

SERIES: MAA NOTES

Catalog Code: NTE-28/YD09
448 pp., Paperbound, 1993
ISBN: 978-0-88385-084-8
List: $45.50 MAA Member: $36.50

Learning by Discovery A Lab Manual for Calculus

Anita Solow, Editor

SERIES: MAA NOTES

Catalog Code: NTE-27/YD09
184 pp., Paperbound, 1993
ISBN: 978-0-88385-083-1
List: $45.50 MAA Member: $36.50

Problems for Students Investigation

Michael B. Jackson & John R. Ramsey, Editors

SERIES: MAA NOTES

Catalog Code: NTE-30/YD09
224 pp., Paperbound, 1993
ISBN: 978-0-88385-086-2
List: $45.50 MAA Member: $36.50

Readings for Calculus

Underwood Dudley, Editor

SERIES: MAA NOTES

Catalog Code: NTE-31/YD09
220 pp., Paperbound, 1993
ISBN: 978-0-88385-087-9
List: $45.50 MAA Member: $36.50

Calculus Mysteries & Thrillers

R. Grant Woods

SERIES: CLASSROOM RESOURCE MATERIALS

The book consists of eleven mathematics projects based on introductory single-variable calculus. The calculus concepts on which the problems within the book are based include: tangent and normal lines, optimization by use of critical points, inverse trig functions, volumes of solids, surface area integrals, and modeling economic concepts using definite integrals.

Catalog Code: CMT/YD09
144 pp., Paperbound, 1998
ISBN: 978-0-88385-711-3
List: $35.00 MAA Member: $28.50

Student Research Projects in Calculus

Marcus Cohen, et al.

SERIES: SPECTRUM

It is yet another workable way to rejuvenate calculus. The monograph is highly recommended to those interested in experimenting with mathematics curricula.
—AAAS Science Books & Films

Catalog Code: SRPC/YD09
232 pp., Paperbound, 1992
ISBN: 978-0-88385-503-4
List: $34.50 MAA Member: $26.95

Combinatorics and Probability

Identification Numbers & Check Digit Schemes

Joseph Kirtland

SERIES: CLASSROOM RESOURCE MATERIALS

The examples taken from everyday life are interesting, well chosen, and carefully explained. The writing is lively, and the illustrations and examples are done well. —Neal Koblitz, *American Mathematical Monthly*

Catalog Code: IDN/YD09
184 pp., Paperbound, 2001
ISBN: 978-0-88385-720-5
List: $44.50 MAA Member: $36.00

Magic Tricks, Card Shuffling and Dynamic Computer Memories

S. Brent Morris

SERIES: SPECTRUM

An excellent stand-alone volume.... Unquestionably well done, and I recommend it without reservation for undergraduate college students and anyone with a mathematical bent who wants to be thoroughly entertained by the poetry of combinatorial mathematics.
—AAAS Science Books and Films

Catalog Code: CARDS/YD09
150 pp., Paperbound, 1998
ISBN: 978-0-88385-527-0
List: $36.00 MAA Member: $28.00

The Mathematics of Choice

How to Count without Really Counting

Ivan Niven

SERIES: MAA TEXTBOOKS

A gem of a book by a master expositor which has been a bestseller for over forty years! Niven shows the combinatorial aspects of algebraic processes, such as the binomial and multinomial expansions.

Catalog Code: NML-15/YD09
200 pp., Paperbound, 1965
ISBN: 978-0-88385-615-4
List: $29.95 MAA Member: $24.95

Proofs and Confirmations

The Story of the Alternating Sign Matrix Conjecture

David Bressoud

SERIES: SPECTRUM

Proofs and Confirmations is an introduction to recent developments in algebraic combinatorics and an illustration of how research in mathematics actually progresses. It is accessible to anyone with a knowledge of linear algebra.

Catalog Code: PAC/YD09
246 pp., Paperbound, 1999
ISBN: 978-0-521-66646-6
List: $29.95 MAA Member: $24.95

Random Walks and Electric Networks

Peter G. Doyle & J. Laurie Snell

SERIES: CARUS MONOGRAPHS

A clear exposition of a rich and vital area, entirely suitable for a novel undergraduate course. If any book can dispel the idea that mathematics consists of unrelated specialties, this is it.
—New Scientist

Catalog Code: CAM-22/YD09
159 pp., Paperbound, 1984
ISBN: 978-0-88385-024-4
List: $24.95 MAA Member: $19.95

Statistical Independence in Probability Analysis & Number Theory

Mark Kac

SERIES: CARUS MONOGRAPHS

Catalog Code: CAM-12/YD09
112 pp., Paperbound, 1969
ISBN: 978-0-88385-025-1
List: $21.95 MAA Member: $17.95

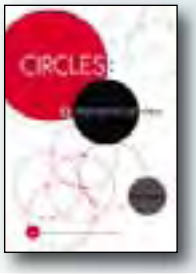
Differential Equations/Iteration

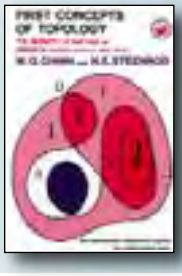
Over and Over Again

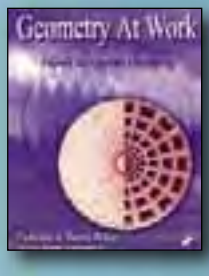
Gengzhe Chang & Thomas W. Sederberg

SERIES: ANNELI LAX NML

Catalog Code: NML-39/YD09
320 pp., Paperbound, 1997
ISBN: 978-0-88385-641-3
List: $36.50 MAA Member: $29.50







Revolutions in Differential Equations

Exploring ODEs with Modern Technology

Michael J. Kallaher, Editor

SERIES: MAA NOTES

Catalog Code: NTE-50/YD09
100 pp., Paperbound, 1999
ISBN: 978-0-88385-160-9
List: $20.75 MAA Member: $16.75

Ordinary Differential Equations

A Brief Eclectic Tour

David A. Sánchez

SERIES: CLASSROOM RESOURCE MATERIALS

A guidebook for the instructor.

Sánchez offers this volume as a response to his and others' criticisms of recent trends in teaching standard sophomore-level courses in ordinary differential equations. Potential teachers would certainly want to consider his sage and engagingly delivered advice. —CHOICE

Catalog Code: ODE/YD09
132 pp., Paperbound, 2002
ISBN: 978-0-88385-723-6
List: $34.95 MAA Member: $27.95

Geometry & Topology

Circles: A Mathematical View (revised edition)

Dan Pedoe

SERIES: SPECTRUM

This excellent little book is an invaluable addition to the library of any teacher of geometry at any level. —The Mathematics Teacher

Catalog Code: CIRCLES/YD09
144 pp., Paperbound, 1995
ISBN: 978-0-88385-518-8
List: $23.00 MAA Member: $18.50

Episodes in Nineteenth & Twentieth Century Euclidean Geometry

Ross Honsberger

SERIES: ANNELI LAX NML

Here is a selection of really beautiful theorems. Few will be familiar even to the professional mathematician, but all are accessible to undergraduates, or even to the lay reader with a firm grounding in Euclid. Highly recommended. —CHOICE

Catalog Code: NML-37/YD09
163 pp., Paperbound, 1995
ISBN: 978-0-88385-639-0
List: $32.50 MAA Member: $26.00

First Concepts of Topology

The Geometry of Mappings of Segments, Curves, Circles and Disks

W. G. Chinn & N. E. Steenrod

SERIES: MAA TEXTBOOKS

This clear and winning little book, for readers willing to come to genuine grips with the idea of a mathematical proof, presents topology as mathematicians see it. —Phillip Morrison in *Scientific American*

Catalog Code: NML-18/YD09
112 pp., Paperbound, 1966
ISBN: 978-0-88385-618-5
List: $21.95 MAA Member: $17.50

Fractals, Graphics & Mathematics Education

Benoit Mandelbrot & Michael Frame, Editors

SERIES: MAA NOTES

Many teachers developed fractals courses on their own in isolation from one another. This book is a token of how widespread such courses have become. The common themes that appear throughout mark the coming of age of this subject.

Catalog Code: NTE-58/YD09
204 pp., Paperbound, 2002
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List: $49.95 MAA Member: $39.95

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K. O. Friedrichs

SERIES: ANNELI LAX NML

Catalog Code: NML-16/YD09
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—John D. Barrow, *PLUS Magazine*

Catalog Code: AFR/YD09
224 pp., Paperbound, 1999
ISBN: 978-0-88385-715-1
List: $48.50 MAA Member: $39.00

Geometric Inequalities

N. D. Kazarinoff

SERIES: ANNELI LAX NML

Kazarinoff starts with simple arithmetic and algebraic inequalities and leads the reader through results including the arithmetic-geometric mean inequality to a far-ranging consideration of many geometric inequalities.

Catalog Code: NML-04/YD09
132 pp., Paperbound, 1961
ISBN: 978-0-88385-604-8
List: $19.95 MAA Member: $15.95

Geometric Transformations I

I. M. Yaglom, Translated by Allen Shields

SERIES: ANNELI LAX NML

Covers Euclidean geometry, symmetry, and the other properties of isometrical transformation.

Catalog Code: NML-08/YD09
134 pp., Paperbound, 1962
ISBN: 978-0-88385-608-6
List: $29.95 MAA Member: $23.95

Geometric Transformations II

I. M. Yaglom, Translated by Allen Shields

SERIES: ANNELI LAX NML

Similarity transformations lead to the study of shape independent of size. This volume also includes further results of isometries.

Catalog Code: NML-21/YD09
189 pp., Paperbound, 1968
ISBN: 978-0-88385-621-5
List: $29.95 MAA Member: $23.95

Geometric Transformations III

I. M. Yaglom, Translated by Abe Shenitzer

SERIES: ANNELI LAX NML

Affine and projective transformations and their associated geometries are treated here.

Catalog Code: NML-24/YD09
237 pp., Paperbound, 1973
ISBN: 978-0-88385-624-6
List: $29.95 MAA Member: $23.95

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Papers in Applied Geometry

Catherine A. Gorini, Editor

SERIES: MAA NOTES

The purpose of this collection is to give as broad a picture as possible of the applications of geometry.

Catalog Code: NTE-53/YD09
208 pp., Paperbound, 2000
ISBN: 978-0-88385-164-7
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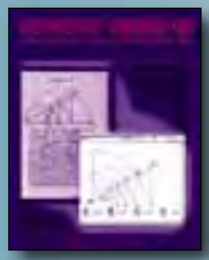
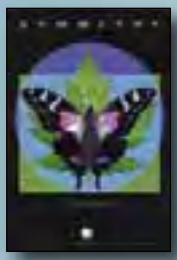

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SERIES: MAA NOTES

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275 pp., Paperbound, 1997
ISBN: 978-0-88385-099-2
List: $14.95 MAA Member: $11.95

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Hans Walser

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Jack E. Graver

SERIES: DOLCIANI

Could be used as a supplement in a graph theory or modeling course.

This is an excellent expository book on rigidity. It covers most of the basic areas and is easy to read. The many well-chosen examples, illustrations and photographs serve to enliven the text. —Tiong Seng Tay, *Mathematical Reviews*

Catalog Code: DOL-25/YD09
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Robin J. Wilson

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ISBN: 978-0-88385-635-2
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Kiltinen's software affords his readers a potentially infinite supply of puzzles while his book outlines underlying issues and solutions of basic examples.... Instructors ought to supplement introductory abstract algebra courses with such material. Recommended.
—D. V. Feldman, *CHOICE*

System Requirements. Windows: Windows 95 or later; **Macintosh** or **Macintosh Classic:** System 7.1 or later

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Joby Milo Anthony, Editor

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—The Mathematics Teacher

Catalog Code: NTE-34/YD09
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A Reader

John Fauvel & Jeremy Gray, Editors

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Constance Reid

SERIES: SPECTRUM

This book is a rich and really interesting source of information on the life and scientific work of Julia Robinson.
—Mathematical Reviews

Catalog Code: JULIA/YD09
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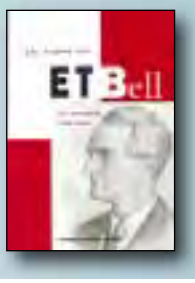
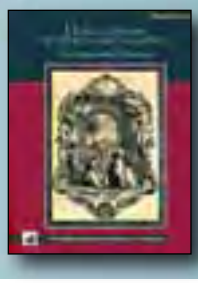
Catalog Code: LRM/YD09
312 pp., Paperbound, 1995
ISBN: 978-0-88385-703-8
List: $39.95 MAA Member: $31.95





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Howard Eves' ***Mathematical Circles*** *books were originally published as six horribly expensive volumes many years ago. It is nice to see them back in three nice hardcover volumes that together cost about as much as one of the original books....What hides behind the titles is a large collection of mathematical stories, anecdotes, and factoids. Eves clearly had fun collecting these stories. They include many old standards, but (given the sheer bulk of the set) most mathematicians will find something here that they didn't know.*

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SERIES: SPECTRUM

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Catalog Code: NML-26/YD09
234 pp., Paperbound, 1977
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—Michael Berg, *MAA Online*

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This is an interesting biography, full of anecdotes and insights....The book is attractively presented and well put together....Strongly recommended for school libraries and for anyone interested in the history of mathematics.

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Everyone who teaches mathematics at the college level should own this book....It contains 6-10 page biographical sketches of 60 of the most important mathematicians born between 1707 and 1910. The information seems to be quite reliable, the presentation is interesting, and there are fascinating quotes by and about the mathematicians.

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The discussion is clear, thorough and well motivated and the reader is encouraged to participate.

—*Mathematical Reviews*

Catalog Code: NML-30/YD09
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Constance Reid

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Catalog Code: NTE-51/YD09
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Ronald Calinger, Editor

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Catalog Code: DOL-20/YD09
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Ergodic Theory of Numbers

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The Geometry of Numbers *is a very well-written expository book. It is well-paced and enjoyable to read. The material is interesting, well-chosen, and presented at a level appropriate for high-school students, undergraduates and teachers at all levels.*
—Gary MacGillivray, *Crux Mathematicorum*

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Starting with the basic order properties of real numbers, this book carries the reader through the classical inequalities of Cauchy, Minkowski, and Hölder with many variants and applications.

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Øystein Øre

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This introduction gives the reader some of the history of number theory, touching on triangular and pentagonal triples, magic squares and Pythagorean triples, and numeration systems.

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Joe Roberts

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Catalog Code: LURE/YD09
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—*Times Literary Supplement*

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Catalog Code: MPT/YD09
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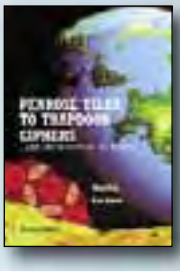

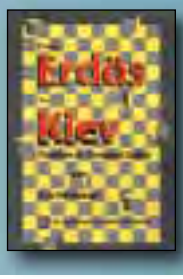

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—Mathematical Spectrum

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ISBN: 978-0-88385-632-1
List: $15.00 MAA Member: $12.00

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For People Who are Amused by Words

Tom M. Apostol

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Underwood Dudley

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This book is about angle trisections and the people who attempt them. Its purposes are to collect many trisections in one place, inform about trisectors, amuse the reader, and perhaps most importantly, reduce the number of trisectors.

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Catalog Code: NML-25/YD09
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Edward J. Barbeau, Murray S. Klamkin & William O. J. Moser

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The organization of the book makes it a superb pedagogical instrument.... Throughout the book are interspersed fables concerning mathematicians and occasional "bons mots." They are wonderful....I suggest you try it out on some of your talented undergraduate students.
—The Mathematical Intelligencer

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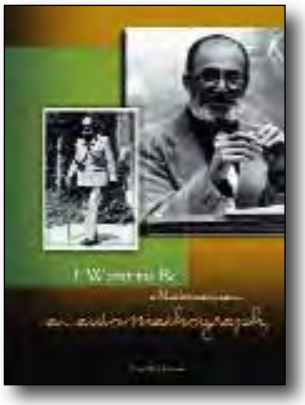

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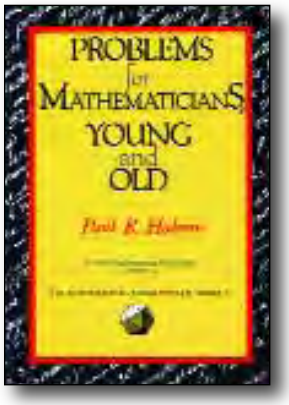

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