

Review

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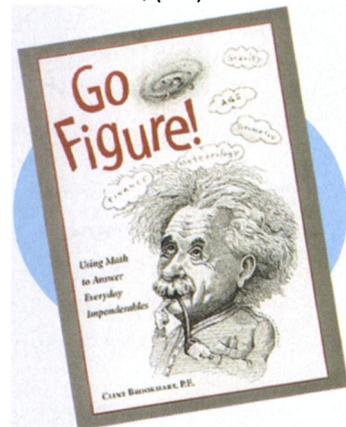
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teachers can promote mathematical discussions and gain insight into students' thinking. Such mathematical content as geometry and number theory is embedded in these vignettes.

The book is well written, and the introduction gives a helpful overview of the main ideas and structure of the book. Few readers will read this book cover to cover, but the chapters contain interesting information for classroom teachers and teacher educators.—*Loretta Kelley, City College of San Francisco, San Francisco, CA 94112.*

Go Figure! Using Math to Answer Everyday Imponderables, Clint Brookhart, 1998. xiv + 144 pp., \$22.95 cloth. ISBN 0-8092-2882-3. Contemporary Publishing Group, 4255 W. Touhy Ave., Lincolnwood, IL 60646-1975, (847) 679-5500.



This book bills itself as an “engaging collection of everyday imponderables” that can be understood by applying mathematics. Marred by a lack of focus, however, the book leaves its subject matter mysterious.

A flip through the table of contents reveals a weighty list of material. Solar-system mechanics, Newton's inverse square law, and Einstein's special theory of relativity are just three of the more than forty content areas in this book. Averaging two to five pages per topic, few subjects receive more than a cursory treatment.

For most topics, Brookhart gives, with no derivations, formulas that allow the reader to carry out sample computations with a calculator. Given the book's casual mention of such advanced concepts as Taylor series and limits,

the inclusion of step-by-step keystrokes for many of the calculations is puzzling.

My reading of the book also revealed an error. In explaining the technique of casting out nines, Brookhart incorrectly implies that the method is a fool-proof way to check the accuracy of calculations.

Go Figure! proves that interesting subject matter alone is not enough to guarantee the educational merit of a book. Too difficult for young students and too sketchy for older students, *Go Figure!* fails to find an appropriate audience for its content.—*Daniel Scher, New York University, New York, NY 10011.*

High School Mathematics at Work: Essays and Examples for the Education of All Students, Mathematical Sciences Education Board—National Research Council, 1998. xiii + 177 pp., \$27.95 paper. ISBN 0-309-06353-1. National Academy Press, 2101 Constitution Ave., N.W., Lockbox 285, Washington, DC 20055, (800) 624-6242.

This book presents current issues in applied mathematics, standards and assessment, and curriculum in a way that is informative, interesting, and relevant to high school mathematics students. The book is a resource of current research trends, and it supplies the high school mathematics teacher with several dynamic classroom lessons that use mathematics in authentic situations. For example, mathematics is connected to the lottery, traffic control, and hospital incidents. The ideas help teachers make mathematics purposeful for their students.

Where other resources may have described classroom techniques in general, this exemplary resource is specific. The ideas follow the trends of mathematics education that are discussed in the book's essays.—*Regina M. Mistretta, Fontbonne Hall Academy, Brooklyn, NY 11209.*

How to Ace Calculus, The Streetwise Guide, Colin Adams, Abigail Thompson, and Joel Hass, 1998. x + 242 pp., \$14.95 paper. ISBN 0-7167-3160-6. W. H. Freeman & Co., 41 Madison Ave., New York, NY 10010, (212) 576-9400.

Mathematics textbooks, supplements, and study guides are known for their dry writing. Here, the authors have tried to inject a strong dose of levity and readability into their work, which is suitable as a supplement for a first course in calculus. The topics include review, prerequisite, and summary material; advice on choosing an instructor and studying for examinations; and a wonderfully useful collection of common errors.

Most instructors should find that the positive aspects of this book significantly outweigh the negative ones. Among the former are lively writing, an approach of working primarily through examples, good help building intuition, several superior mnemonic devices, constructive examination-related strategies, and repeated advice to do the work and get help, all given in student-friendly form. Some teachers will have discomfort with the source of much of the humor in the book. Direct and indirect statements reinforce the stereotypes of academicians as being indifferent to teaching and of mathematicians as being a little bit weird; and the book has a slight conspiratorial undercurrent of “we're just in this for the grade.”

This book can be a useful supplement for students, and it can also serve as a reminder to instructors to consider their role and their students' perception of them most carefully.—*David L. Abrahamson, Rhode Island College, Providence, RI 02908.*

An Imaginary Tale: The Story of $\sqrt{-1}$, Paul J. Nahin, 1998. xvi + 257 pp., \$24.95 cloth. ISBN 0-691-02795-1. Princeton University Press, c/o California/Princeton Fulfillment Services, 1445 Lower Ferry Rd., Ewing, NJ 08618, (800) 777-4726.

This book is a labor of love and a wide-ranging storehouse of vignettes for anyone who has wondered about the origin and acceptance of imaginary numbers, how they build and simplify relationships involving trigonometry, or how they are embedded in such real-world objects as amplifiers. The word *story* in the title is appropriate in that the blend of history and mathematics supplies a very readable exposition, with formulas and exercises included in the flow rather than separated from it.

Many of the precalculus connections are within reach of an advanced high school senior. The level of mathematical sophistication climbs sharply near the middle of the book, however, aiming more for an upper-division university mathematics major. The author occasionally introduces notation, for example, $\angle\theta$ for $\cos\theta + i\sin\theta$, that may not be familiar to those who lack his engineering background, but this drawback does not impede a most enjoyable tour of the human foibles and fascination related to the discoveries about complex numbers, thereby illuminating Jacques Hadamard's statement “The shortest path between two truths in the real domain passes through the complex domain.”—*Lawrence M. Lesser, Armstrong Atlantic State University, Savannah, GA 31419.*

Mathematically Speaking: A Dictionary of Quotations, Carl C. Gaither and Alma E. Cavazos-Gaither, illus. by Andrew Slocombe, 1998. xiii + 484 pp., \$39 paper. ISBN 0-7503-0503-7. Institute of Physics Publishing, 150 South Independence Mall West, Ste. 1035, Philadelphia, PA 19106.

With the well-thought-out organization of this collection, teachers and students can easily identify the author or source of a mathematically related quotation. They can also verify the wording of a quotation or find quotations on a specific topic. The content, which varies from intensely thought provoking to rib tickling, includes such items as philosophical classics, song lyrics, and poems.

The large number of citations also exposes readers to wonderful publications with which they might not otherwise become familiar. Within the 120 highlighted topics, the reader will occasionally question the necessity for including particular quotations and will suppose that the authors chose to err on the side of inclusion rather than exclusion. A few of the quotations contain questionable language and sexual innuendoes that might offend some students and parents, but these quotations could easily be avoided. The typical teacher will find frequent use for

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