

BOOK REVIEWS

ALAN LAW

Calculus Mysteries and Thrillers, by R. Grant Woods
published by the Mathematical Association of America, 1998,
ISBN 0-88385-711-1, softcover, 131+ pages, \$24.95 (US).
Reviewed by **G.J. Griffith**, University of Saskatchewan, Saskatoon, Saskatchewan.

This book consists of eleven single variable calculus problems together with their solutions. The problems are posed in story form. In each case, the student is supposedly a client who is to provide a complete solution to a judge, a government agency or some other “math freak”, which implies that slipshod solutions are unacceptable.

My favourite problem is the first, which involves the mathematics of banking pool balls off a parabolic rail. I like it because it is relatively easy and should be accessible to some of my better freshmen students (and perhaps it reflects my mis-spent youth). I also like the *Sunken Treasure* problem, which involves lowering a parabolic hull onto the ocean floor (classified as difficult) and the somewhat standard *Designing Dipsticks* problem, which requires the student to calculate volumes of solids of revolution.

I dislike *The Case of the Swivelling Spotlight*, *Saving Lunar Station Alpha* and *The Case of the Alien Agent*, since I consider these to be far too complicated even for top rate freshmen.

Dr. Woods has assigned seven of the eleven problems to groups of students in his calculus classes and claims that “this experience has convinced [him] that these projects are feasible for reasonably bright freshmen working in groups.” I can only comment that from my experience, this implies that Manitoba freshmen are significantly ahead of their counterparts who reside in the neighbouring province to the West.

The Math Chat Book, by Frank Morgan,
published by the Mathematical Association of America
(Spectrum Series), 2000.
ISBN 0-88385-530-5, softcover, 113 pages, \$19.95 (U.S.).
Reviewed by **Sandy Graham**, University of Waterloo, Waterloo, Ontario.

This book is a compilation of questions and answers inspired by problems posed to the author during a live call-in TV show also called Math Chat. The book/show does for mathematics, what the CBC program Quirks and Quarks does for science. The author tries to pose interesting problems that will make everyone enjoy math regardless of their past experiences. He has

divided the book into five sections called stories: Time, Probabilities and Possibilities, Prime Numbers and Computing, Geometry, and Physics and the World. Each story is divided into several short episodes of related questions. There is even a puzzle at the beginning of the book with a \$1000 prize for the best solution submitted to the Mathematical Association of America's website.

The problems range from modular arithmetic relating to leap years, to some game theory analysis of tic-tac-toe, to classic statistics fallacies when flipping a coin, to discussing the largest prime number computed to date. Some of the problems posed, however, seem to have little to do with mathematics, such as "Which makes the water level in a bucket rise more, adding a pound of salt or a pound of sand?" In a few cases, the author poses a problem but does not give a solution. In most cases, the solutions go into very little detail of the underlying mathematics.

The book is quick to read for anyone interested in mathematics, and it may spark some interest for those who have shied away from this discipline in the past. The problems could provide interesting subject matter for discussion in a high school math club. With its wide variety of topics, teachers could use some of the Math Chat scenarios as starting points for more detailed analysis in almost any mathematics class, from high school to university. Teachers may even be inspired to generate more quirky mathematical problems relating to the topics in their courses.

Although the mathematical content is sometimes questionable, overall the book is worth reading. My favourite excerpt comes from Episode 7 — Predicting the Random. It is typical of many of the "problems" of the book — a little math mixed with a little fun.

Mathematical Trick

1. What is $2 + 2$?
2. What is $4 + 4$?
3. What is $8 + 8$?
4. What is $16 + 16$?
5. Quick, pick a number between 12 and 5.

Math Chat predicts that your answer is 7. Try it out on your friends; it works. Why not start your next discussion about it?