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SYNOPSIS

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Featuring the Bernoulli Trials 2001, by Ian VanderBurgh and Christopher G. Small

357 The Olympiad Corner: No. 216 *R.E. Woodrow*

Featuring the problems of the 15th Balkan Mathematical Society, held in Nicosia, Cyprus; the 1st Mediterranean Mathematical Olympiad, April 22, 1998; the Final National Selection Competition for the Greek Team 1998; the problems of grade 3 and grade 4 of the 38th National Mathematical Olympiad of Slovenia 1994; the problems of the Final Round of the 47th Czech and Slovak Mathematical Olympiad; readers' solutions to the problems of the Final Round of the 47th Czech and Slovak Mathematical Olympiad; solutions to problems of the Republic of Moldova XL Mathematical Olympiad, 1996; solutions to problems of the Republic of Moldova XL Mathematical Olympiad, 1996; and solutions to problems of Day 2 of the Republic of Moldova XL Mathematical Olympiad, 10 and 11-12 forms; solutions and comments about problems of the 31st Canadian Mathematical Olympiad.

374 Book Reviews *Alan Law*

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377 Eight Proofs of One Theorem

Jooyong Ahn, Hojoo Lee and Choongyup Sung

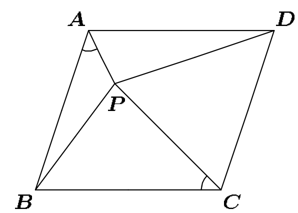
The old saying "*there is more than one way to skin a cat*" is certainly true in geometry; there is no unique way to prove a theorem or to solve a problem.

In an article in this journal [1998 : 81], Georg Gunther presented one problem with six different solutions . And Jimmy Chui

[1999 : 235] gave four different proofs of a combinatorial identity. It is pleasant to see different solutions of a problem. It is our purpose in this article to examine various different solutions to a geometry problem. We also hope to emphasize the importance of studying a problem with different solutions.

Theorem 1.

If P is a point in the interior of a parallelogram $ABCD$ such that the angles at A and C with chord BP are congruent, then the angle at D and B with chord AP are also congruent; if $\angle PAB = \angle PCB$, then $\angle PDA = \angle PBA$.



Eight different proofs are given!

Read on!

Featuring the problems of the Mandelbrot Competition, Division B Round Two Individual Test; Mandelbrot Morsels, An Interpretation of Interpolation; and the problems of the Mandelbrot Competition, Division B Round Two Team Test, December 1997.

This month's "free sample" is:

M9. *Proposed by Richard Hoshino, Dalhousie University, Halifax, Nova Scotia.*

Find integers a, b, and c (not all equal) with $a + b + c = 2001$, such that a, b, and c form an arithmetic sequence (in that order) and $a + b$, $b + c$, and $c + a$ form a geometric sequence (in that order).

"Number theory is a beautiful area of mathematics that, for the most part, deals with properties of the positive integers $1, 2, 3, \ldots$. As a result, many of the toughest problems in the field can be understood by high school students.

If you study number theory, you will find that prime numbers play a central role. Sometimes you will find that breaking things down into primes can shed some light on the original problem."

This month's "free sample" is:

2669$\star$. *Proposed by Murray S. Klamkin, University of Alberta, Edmonton, Alberta.* (Professor Klamkin offers a prize of $50 for the first correct solution received by the Editor-in-Chief.)

Let A_1, A_2, ..., A_{2n}, be any $2n$ points in $\mathbb{E}^m$. Determine the largest k_n such that

$$A_1A_2^2+A_2A_3^2+\cdots+A_{2n}A_1^2 \;\geq\; k_n\left(A_1A_{n+1}^2+A_2A_{n+2}^2+\cdots+A_nA_{2n}^2\right).$$

For $n=2$, it is easily shown that $k_2=1$. That $k_3=\frac{1}{2}$ is an Armenian Olympiad problem [2001 : 9].