29: No 6 OCTOBER / OCTOBRE 2003

Published by:

Canadian Mathematical Society
Société mathématique du Canada
577 King Edward, POB/CP 450-A
Ottawa, ON K1N 6N5
Fax/Télec: 613 565 1539

SYNOPSIS

353 Skoliad: No. 72 *Shawn Godin*

2003 Maritime Mathematics Competition (Concours de Mathématiques des Maritimes 2003)

Solutions to the Manitoba Mathematical Contest, 2002

361 Mathematical Mayhem

361 Mayhem Problems: M107–M112

Here is a "free sample":

M112. *Proposé par l'Équipe de Mayhem.*
Déterminer le quotient de l'aire totale de l'hexagone régulier $ABCDEF$ et de l'aire du triangle GDE, si G est le point milieu de AB.

. . . .

Given that $ABCDEF$ is a regular hexagon and G is the mid-point of AB, determine the ratio of the total area of hexagon $ABCDEF$ to the area of triangle GDE.

364 Mayhem Solutions: M57–M62

367 Pólya's Paragon *Paul Ottaway*

370 Three-Pile Nim with Blocking *Arthur Holshouser and Harold Reiter*

Nim, also known as Bouton's Nim, is a two-player counter-pickup game that is well known in combinatorial game theory. In this paper we develop a winning strategy for a more complicated variation of Nim, in which exactly one move can be blocked at each stage of the game. Remarkably, the winning strategy for the more complicated version is much simpler than for ordinary (Bouton's) Nim.

374 The Olympiad Corner: No. 232 *R.E. Woodrow*

Featuring the 32^{nd} Austrian Mathematics Olympiad Final Round (Advanced Level), 2001; five Klamkins "Quickies" with their solutions; readers' solutions to some of the problems of

Euclid wrote a book containing a collection of geometric fallacies called Pseudaria. But this book was lost. Since the time of Euclid many amusing examples of geometric fallacies have been published. In many of these examples, when the figures are accurately drawn, the mistakes become apparent. However, even when the figures are accurately drawn and the argument is correct, geometric fallacies may occur. We often deduce false conclusions for lack of careful consideration. If the false conclusion is not absurd, it can easily be overlooked.

This article proposes some new examples of geometric fallacies, together with an explanation of the errors.

Enjoy!

This month's "free sample" is:

2873. *Proposé par Kee-Wai Lau, Hong Kong, Chine.*

Trouver tous les nombres entiers positifs n tels que $x = y = z = 1$ soit l'unique solution du système d'équations

$$\begin{aligned} x + y + z &= 3\,, \\ x^2 + y^2 + z^2 &= 3\,, \\ x^n + y^n + z^n &= 3\,. \end{aligned}$$

. . . .

Find all positive integers n such that the system of equations

$$\begin{aligned} x + y + z &= 3\,, \\ x^2 + y^2 + z^2 &= 3\,, \\ x^n + y^n + z^n &= 3\,. \end{aligned}$$

has the unique solution $x = y = z = 1$.