

35: No 1 February / Février 2009

Published by:

Canadian Mathematical Society
Société mathématique du Canada
1785 Alta Vista Dr., Suite 105
Ottawa, ON K1G 3Y6
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SYNOPSIS

1 Skoliad: No. 114 *Václav Linek*

- Math Kangaroo Contest, Practice Set
- Concours math kangaroo (feuille d'entraînement)
- solutions to the Mathematics Association of Quebec Contest (Secondary level), 2006

11 Mathematical Mayhem *Ian VanderBurgh*

11 Mayhem Problems: M376–M381

13 Mayhem Solutions: M338–M343

18 Problem of the Month *Ian VanderBurgh*

20 The Olympiad Corner: No. 275 *R.E. Woodrow*

Featuring the German Mathematical Olympiad, Final Round, Grades 12–13, 2006; the Thai Mathematical Olympiad Examinations 2005 (selected problems); the 46th Ukrainian Mathematical Olympiad 2006, Final Round, 11th Form; the Czech–Polish–Slovak Mathematics Competition 2006; the XXI Olimpiadi Italiano della Matematica (Cesatanico) 2006; and readers' solutions to some of the problems from

- the Estonian IMO Selection Contest 2004–2005;
- the Trentième Olympiad Mathématique Belge Maxi Finale 2005;
- the 2005 Vietnam Mathematical Olympiad;
- the 2005 German Mathematical Olympiad.

36 Book Reviews *Amar Sodhi*

36 *Putnam and Beyond*

by Răzvan Gelca and Titu Andreescu
Reviewed by Jeff Hooper

37 *Mathematical Connections: A Companion for Teachers and Others* by Al Cuoco

Reviewed by Peter S. Brouwer

38 Velocity Analysis: an Approach to Solving Geometry Problems

by Peng YuChen

Have you ever wondered why a light ray leaving one focus of an ellipse is always reflected to the other focus after being reflected in the ellipse? Have you wondered about what happens to a light ray leaving the focus of a parabola as it is reflected in the parabola? Did you know that it is possible to find the length of a logarithmic spiral without using Calculus?

The author shows how to answer these questions using Velocity Analysis.

Enjoy!

42 Problems: 3401–3413

This month's "free sample" is:

3407. *Proposed by Roy Barbara, Lebanese University, Fanar, Lebanon.*

Let S be a set of positive integers containing the integer 2007 and such that

- (a) If $x, y \in S$ and $x \neq y$, then $|x - y| \in S$, and
- (b) If $x \in S$, then $(x^3 - 1007x + 3007) \in S$.

Prove that S is the set of all positive integers.

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3407. *Proposé par Roy Barbara, Université Libanaise, Fanar, Liban.*

Soit S un ensemble d'entiers contenant l'entier 2007 et tel que

- (a) Si $x, y \in S$ et $x \neq y$, alors $|x - y| \in S$, et
- (b) Si $x \in S$, alors $(x^3 - 1007x + 3007) \in S$.

Montrer que S est l'ensemble de tous les entiers positifs.

47 Solutions: 3301–3312