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SYNOPSIS

1 Skoliad No. 122 *Lily Yen and Mogens Hansen*

- 27th New Brunswick Mathematics Competition, 2009; Grade 9, Part C
- 27^e Concours de Mathématiques du Nouveau-Brunswick, 2009 ; 9^e année, Partie C
- Solutions to the questions of the Swedish Junior High School Mathematics Contest, Final Round, 2007/2008

7 Mathematical Mayhem *Ian VanderBurgh*

7 Mayhem Problems: M420–M425

9 Mayhem Solutions: M388–M393

14 Problem of the Month *Ian VanderBurgh*

18 The Olympiad Corner: No. 283 *R.E. Woodrow*

Featuring the 2007 IMO in Vietnam, Problems Proposed But Not Used; the Bundeswettbewerb Mathematik 2006, Second Round; the Bundeswettbewerb Mathematik 2007, First Round; and readers' solutions to some problems from

- the Bulgarian National Olympiad 2006;
- the Indian Mathematical Olympiad 2006 (Team Selection Problems);
- the 2004 South African Mathematical Olympiad, Third Round, Senior Division;
- the 2006 Vietnamese Mathematical Olympiad;
- the 47th International Mathematical Olympiad 2006 in Slovenia, Problems Proposed but not Used.

39 Book Reviews *Amar Sodhi*

39 *When Less is More: Visualizing Basic Inequalities*

by Claudi Alsina and Roger Nelsen

Reviewed by Bruce Shawyer

40 *I Want to be a Mathematician, A Conversation with Paul Halmos*
DVD produced and directed by George Csicsery
Reviewed by Brenda Davison

42 On an Inequality from the IMO 2008

by *Nikolai Nikolov and Svilena Hristova*

The authors investigate the inequality contained in the following problem from the IMO 2008 in the case of several variables:

Problem 2(a) (IMO 2008) Prove that $\frac{x^2}{(1-x)^2} + \frac{y^2}{(1-y)^2} + \frac{z^2}{(1-z)^2} \geq 1$ for all real numbers x, y, z , each different from 1, and satisfying $xyz = 1$.

Enjoy!

44 Problems: 3501–3513

This month's "free sample" is:

3501. *Proposed by Hassan A. ShahAli, Tehran, Iran.*

Let \mathbb{N} be the set of positive integers, E the set of all even positive integers, and O the set of all odd positive integers. A set $S \subseteq \mathbb{N}$ is *closed* if $x + y \in S$ for all distinct $x, y \in S$, and *unclosed* if $x + y \notin S$ for all distinct $x, y \in S$. Prove that if \mathbb{N} is partitioned into A and B , where A is closed and nonempty, and B is unclosed and infinite, then $A = E$ and $B = O$.

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3501. *Proposé par Hassan A. ShahAli, Téhéran, Iran.*

Soit \mathbb{N} l'ensemble des nombres entiers positifs, $E \subseteq \mathbb{N}$ l'ensemble de ceux qui sont pairs, et $O \subseteq \mathbb{N}$ l'ensemble de ceux qui sont impairs. On dit qu'un ensemble $S \subseteq \mathbb{N}$ est *fermé* si $x + y \in S$ pour tous les $x, y \in S$ distincts, et *non-fermé* si $x + y \notin S$ pour tous les $x, y \in S$ distincts. Montrer que si \mathbb{N} est partagé en A et B , où A est fermé et non vide, et B est non-fermé et infini, alors $A = E$ et $B = O$.

49 Solutions: 3401–3414