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### SYNOPSIS

65 Skoliad: No. 108    *Robert Bilinski*

- Concours de Mathématiques du Québec 2006
- 2006 Mathematics Association of Quebec Contest

69 Mathematical Mayhem    *Ian VanderBurgh*

- 69 Mayhem Problems:    M332–M337
- 71 Mayhem Solutions:    M282–M287
- 76 Problem of the Month    *Ian VanderBurgh*

79 The Olympiad Corner: No. 268    *R.E. Woodrow*

Featuring the Estonian IMO Team Selection Contest 2004–2005; the Trentième Olympiad Mathématique Belge Maxi Finale 2005; the 2005 Vietnam Mathematical Olympiad; the 2005 German Mathematical Olympiad, Final Round, Grades 12–13; and readers' solutions to some of the problems from

- the XX Olimpiadi Italiane Della Matematica, Cesenatico, 2004;
- the 17<sup>th</sup> Irish Mathematical Olympiad, First and Second Papers;
- the New Zealand Mathematical Olympiad, IMO Squad Selection Problems 2004;

95 Book Reviews    *John Grant McLoughlin*

95 *Math Through the Ages: A Gentle History for Teachers and Others (Expanded Edition)*

by William P. Berlinghoff and Fernando Q. Gouvêa

Reviewed by John Grant McLoughlin

96 *Minnesota Math League XXV 1980–2005*

by A. Wayne Roberts

Reviewed by Robert L. Crane

97 *Sharpening the Hadwiger-Finsler Inequality*

by Cezar Lupu and Cosmin Pohoată

Let  $ABC$  be any triangle with side lengths  $a, b, c$ , and area  $S$ . The Hadwiger–Finsler Inequality states that

$$a^2 + b^2 + c^2 \geq 4S\sqrt{3} + (a - b)^2 + (b - c)^2 + (c - a)^2.$$

The authors refine this inequality to the following:

$$a^2 + b^2 + c^2 \geq 4S\sqrt{3 + \frac{4(R - 2r)}{4R + r}} + (a - b)^2 + (b - c)^2 + (c - a)^2.$$

They then present a number of applications.

Enjoy!!

102 Problems: 3313–3325

This month's "free sample" is:

**3318.** *Proposé par D.E. Prithwijit, University College Cork, République d'Irlande.*

On suppose que les hauteurs  $AD, BE$  et  $CF$  d'un triangle  $ABC$  coupent respectivement le cercle circonscrit aux points  $X, Y$  et  $Z$ . Montrer que

$$\frac{AX}{AD} + \frac{BY}{BE} + \frac{CZ}{CF} = 4.$$

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**3318.** *Proposed by D.E. Prithwijit, University College Cork, Republic of Ireland.*

The altitudes  $AD, BE$ , and  $CF$  of  $\triangle ABC$  are produced to meet the circumcircle at  $X, Y$ , and  $Z$ , respectively. Prove that

$$\frac{AX}{AD} + \frac{BY}{BE} + \frac{CZ}{CF} = 4.$$

107 Solutions: 3214–3225, 3227