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17 SPAs and the Harmonic Mean
   by Bruce Shawyer

An SPA is a Symmetric Polygonal Arc, consisting of three equal straight line segments that have equal angles between adjacent segments. An SPA could be a portion of a regular polygon, or it could be a whole equilateral triangle, depending on its angle.

In this article, we will explore some properties of SPAs and their connection with the harmonic mean.

Enjoy!

501 The Olympiad Corner: No. 259  R.E. Woodrow

Featuring the 44th International Mathematical Olympiad Short-listed Problems; a reader’s comment on a solution to problem 9 from the Singapore Mathematical Olympiad from October 2006; and readers' solutions to some of the problems from

- 7th National Olympiad of Bosnia and Herzegovina 2002;
- 4th Hong Kong Mathematical Olympiad;
- 15th Irish Mathematical Olympiad, First Paper;
35 Book Reviews  *John Grant McLoughlin*

35 *99 Points of Intersection*
   by Hans Walser, translated by Peter Hilton and Jean Pedersen
   Reviewed by Nora Franzova

36 *Real Infinite Series*
   by Daniel D. Bonar and Michael J. Khoury
   Reviewed by John Grant McLoughlin

37 A Parity Subtraction Game
   by Richard K. Guy

   In the *Olympiad Corner* No. 222 of *CRUX with MAYHEM*, 28, no. 4 (May, 2002), a selection of problems from the St. Petersburg Mathematical Olympiads is given by Oleg Ivrii and Robert Barrington Leigh. The third one is

   A game starts with a heap of 25 beans. Two players alternately remove 1, 2, or 3 of them. When all the beans have been taken, the winner is the player who has an even number of beans. Assuming perfect play, does the first player or the second have a sure win?

   The *Olympiad Corner* editor recently received a request for a solution. The problem is from a list of supplementary problems; it may not have been used, and no solution is given in the book.

   The author proceeds to develop a solution for heaps of beans of various sizes.

   Enjoy!

40 Problems: 3182, 3185, 3198, 3201–3212

   This month's "free sample" is:

3208. *Proposed by Shaun White, student, Vincent Massey Secondary School, Windsor, ON.*

   Find the largest integer $k$ such that for all positive real numbers $a$, $b$, $c$, we have

   $$(a^3 + 3)(b^3 + 6)(c^3 + 12) > k(a + b + c)^3.$$
3208. Proposé par Shaun White, étudiant, École secondaire Vincent Massey, Windsor, ON.

Trouver le plus grand entier \( k \) tel que pour tous les nombres réels positifs \( a \), \( b \) et \( c \), on ait

\[
(a^3 + 3) (b^3 + 6) (c^3 + 12) > k(a + b + c)^3 .
\]

47 Solutions: 3101–3113