SAMO – INVITATION TO PARTICIPATE

The Harmony South African Mathematics Olympiad (SAMO) is organised by the SA Academy for Science and Arts in co-operation with AMESA and SAMS (South African Mathematical Society).

AMESA (Western Cape) is responsible for setting the 2005 First Round paper for the Senior Section. The papers will be set at a workshop facilitated by Marcus Bizony.

Dates:
Saturday, 4 September: 08:30 -18:00
Sunday, 5 September: 08:30 - 15:00

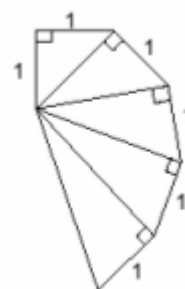**Venue:** Diocesan College (Bishops), Campground Road, Rondebosch

Invitation:
If you are interested in participating in the workshop, please contact Marcus Bizony (tel 083-459-9912, e-mail: mbizony@bishops.org.za) by 30 August, providing your contact details and describing your interest and relevant experience.

You are also invited to send relevant questions to Marcus Bizony at mbizony@bishops.org.za

Here are a few questions from recent years to whet your appetite:

1. Given that $x + y = -1$, the largest value of xy is
    (A) 0   (B) 2   (C) $\dfrac{1}{4}$ (D) $-\dfrac{1}{4}$ (E) -1

2. The average of three numbers is 18. If the largest number is replaced by the number 38, then the average of the three numbers is 23. The original number that was replaced, is
    (A) 38   (B) 23   (C) 15   (D) 18   (E) 33

3. How many two-digit numbers are exactly seven times the sum of their digits?
    (A) 4   (B) 5   (C) 6   (D) 7   (E) more than 7

4. If n is a perfect square, then the next perfect square greater than n is
    (A) $n^2 + 1$ (B) $n^2 + n$ (C) $2n + 1$ (D) $n + 2\sqrt{n} + 1$ (E) none of these

5. The first five triangles in a sequence of right-angled triangles are shown in the figure. If there are 100 triangles, how many of the line segments have integer lengths?
    (A) 101   (B) 102   (C) 100   (D) 109   (E) 110

Alwyn Olivier
For the Competitions Special Interest Group