



AUSTRALASIAN PROBLEM SOLVING MATHEMATICAL OLYMPIADS (APSMO)

DIVISION J

Exploring Maths Through Problem Solving
For Students up to 12 Years of Age



AUSTRALASIAN PROBLEM SOLVING MATHEMATICAL OLYMPIADS

ABOUT THE OLYMPIADS

APSMO Inc has been providing challenging *maths problem solving* programs since 1987. In 2009, more than 35,100 students from schools in Australia and New Zealand participated in the Olympiads.

Olympiad Divisions :

Division J - Up to 12 years old

Division S - Up to 14 years old

Goals of the APSMO Program

- Stimulate enthusiasm and love for Mathematics
- Introduce important Mathematical concepts
- Teach major strategies and develop flexibility in problem solving
- Strengthen Mathematical intuition
- Foster Mathematical creativity and ingenuity
- Provide for the satisfaction, joy, and thrill of mastering challenging problems

Structure of the Contests

- Five monthly contests, starting in May, are given during the school year
- The Olympiad questions emphasise problem solving
- Students participate on an *individual* basis within an Olympiad team
- Awards are presented to individuals and teams
- Each team may have up to 30 students, schools may register more than one team
- Each team requires a **Person in Charge of Olympiads (PICO)** to organise the contests and practice sessions
- We recommend that team practices occur weekly at the very least
- Most participants are in grades 5 - 6, although some exceptional third and fourth grade students have participated successfully
- In Division J, students must be no older than 12 years of age at the 1st of May
- The team registration fee covers the five contests, participant awards and newsletters

WHAT TEACHERS SAY

“I enjoyed teaching and working with the Olympiad problems. It encouraged the children to think and apply concepts they've learned as well as to utilise a common sense approach to solving problems.”

“Olympiad problems are a wonderful boost to thinking in the primary school...most worthwhile and rewarding for both teachers and students alike.”

“Praise for the problem writers. How you manage to squeeze so much logic and thought-provocation into so few words is a real talent.”

“Attendance at practices and enthusiasm never flagged. No one lost interest...I have enjoyed this second year of Maths Olympiads even more than the first. I'm looking forward to next year.”

WHAT STUDENTS SAY

“The thing I liked best about this contest was that it gave me a chance to think things through and sort them out.”

“The Olympiads make me use the thinking part of my brain.”

“At first I didn't want to join the Olympiads in case I failed, but now I think that everyone should have a go!”

“What I like most is learning new ways of solving problems.”

“The Olympiads are an incredible experience for me... they teach me interesting problems that I never learned before.”

“I think the Olympiads help people - they help you to solve problems better.”

“I liked the Maths Olympiads because they gave me an opportunity to think and it was a real challenge. I liked the hard problems and realised that the more I did, the easier they became... Maths Olympiads are something I enjoy very much.”

AWARDS

Individual Student Awards

- a certificate for each participating student
- a medal for any student who obtains a perfect score
- a trophy for the highest individual scorer in each team
- a metal pin for each student whose total score is in the top 10% of scores
- an embroidered Olympiad cloth patch for each student whose total score is in the top 25% of scores

Team Awards

- a plaque for each team whose score is in the top 10% of scores
- a large plaque for the team with the highest score
- a perpetual shield for the team with the highest score. This shield is retained for one year and then passed on to the winner of the following year's contest.

RESOURCES

(please see APSMO website for details)

The following recommended resources are available:

- **Maths Olympiad Contest Problems (Australian Edition) - Volumes 1 and 2**
Past APSMO Maths Olympiad problems. Excellent sources of high-level problems with multiple solution methods, hints answers and strategies. Each volume contains more than 400 questions.
- **Creative Problem Solving in School Mathematics. (Australian Edition)** An excellent tool for teaching problem solving strategies in an organised way.

CONTACT DETAILS

Mailing Address :

APSMO Inc
PO Box 629
WAHROONGA NSW 2076
AUSTRALIA

Web Site : www.apsmo.info

Email : enquiries@apsmo.info

Telephone : (02) 9114 9255

Fax : (02) 9114 9233

A SAMPLE OLYMPIAD - DIVISION J

Time Limit 23 minutes

1. Time: 3 minutes

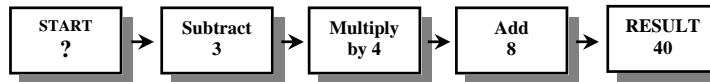
In the subtraction problem below, all five of the digits 3, 5, 6, 7 and 9 are to be placed, one in each box. What is the smallest difference that can be the result?

$$\begin{array}{r} \square \square \square \\ - \square \square \\ \hline \hline \end{array}$$

2. Time: 5 minutes

Five brothers, each born in a different year, share a gift of \$100 according to the following arrangement: each boy, except the youngest, gets \$5 more than his next younger brother. How much does the youngest boy get?

3. Time: 5 minutes

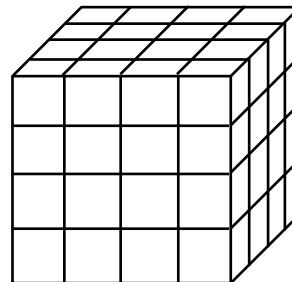


4. Time: 5 minutes

(1,1,9) is a triple of natural numbers whose sum is 11. We consider (1,1,9), (1,9,1) and (9,1,1) to be the *same* triple because each triple has the same three numbers. How many other triples of natural numbers have a sum of 11?

5. Time: 5 minutes

Below is a 4 x 4 x 4 cubic block of wood. If all six faces of the cube are painted red and the cube is then cut into 1 x 1 x 1 cubes along the lines shown, how many 1 x 1 x 1 cubes will have red paint on just 2 faces?



For further information and the answers to these sample questions, please visit our website

www.apsmo.info

AUSTRALASIAN PROBLEM SOLVING MATHEMATICAL OLYMPIADS 2010 OLYMPIADS - DIVISION J REGISTRATION FORM

PLEASE TYPE OR PRINT NEATLY

School : _____

No. of Teams : _____ (each team will be issued with an individual team number)

School Postal Address : _____

Street : _____

Suburb : _____

State : _____ Postcode : _____

Telephone : _____ Fax : _____

Person In Charge of Olympiad (PICO) : _____

PICO's Email : _____

I would prefer to receive Olympiad mailouts : via Mail on the internet

Registration Fees :

Australian Schools : \$135 per team (inc GST)

ONLINE REGISTRATION DISCOUNT

Online Only registrations received before 1st March, 2010 receive a \$10 discount per team. Please visit www.apsmo.info for further details.

- A team may have up to **30 students** only
- Please make cheques payable to **APSMO Inc.**
- Mail this registration form and payment to:

APSMO Inc
PO Box 629
WAHROONGA NSW 2076
AUSTRALIA

Registration Closes 31st March 2010

Register online at www.apsmo.info