SHORT CIRCUIT

Canberra Mathematical Association Inc.
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NEWS AND COMMENT

The 2027 CMA Conference is barely half a year away, but planning is proceeding.

The conference theme, 'Is that a fact – Prove it!' is designed to promote critical thinking about belief, evidence and the various kinds of proof.

In schools, in the past, teachers developed the idea of proof through geometry after the model of Euclid. But Euclid has long since fallen out of favour.

In its place, practical computation using memorised formulae and procedures has become a more usual understanding of what mathematics is about. The bridge of asses has hardly been crossed for years.

Perhaps the time has arrived to think again about evidence and proof, to question whether a thing really is true whenever enough people on social media think it is.

Conference presentations could potentially broach ideas of statistical inference and confidence levels arising in legal and commercial contexts. They might discuss the interplay between scientific evidence and mathematical proof, how mathematical facts depend on axioms and how scientific predictions depend on how well mathematical assumptions match reality.

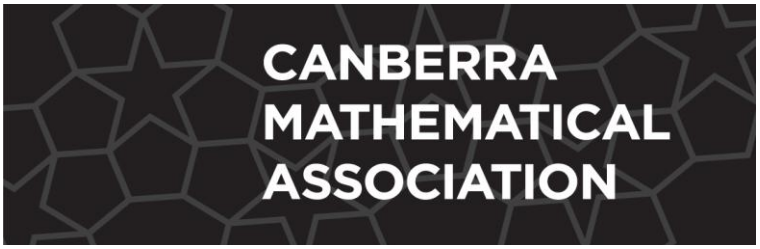
The possibilities are many.

Save the day: Saturday March 20, 2027.

Year 12 maths medals
CMA offers to any school or college that wants one, a medal to be awarded to the top Maths student in Year 12.

Medals can be collected from Peter McIntyre in Kambah (0403 509 952) or Valerie Barker in Aranda (0410 151 554). The schools are responsible for engraving.

Maths in the street
Look out for CMA people at Curtin shops in the morning between 10 and 12 on Saturday 17 October.



NEWSLETTER

The CMA newsletter, Short Circuit, is distributed monthly to everyone on our mailing list, free of charge and regardless of membership status.

That you are receiving Short Circuit does not imply that you are a current CMA member, but we do encourage you to join.

Short Circuit welcomes all readers.

CMA MEMBERSHIP

Memberships run from 1 Jan to 31 Dec. each year. Membership forms may be downloaded from the CMA website:

http://www.canberramaths.org.au

The benefits of Membership of CMA may be found on the website.

CONTENTS

PD opportunity—p.2
Puzzles solution—p.2
Announcements—p.3
CMA committee—p.4

AAMT - PERSPECTIVES

On **Saturday 17 October 2026,** The Australian Association of Mathematics Teachers will present their inaugural **Keynotes Conference: Perspectives on Pedagogy,** live online via Zoom Webinar.

The **Hanna Neumann Lecture** will precede the conference on the evening of Friday 16 October 2026, delivered by AAMT Board Chair Professor Catherine Attard. Attendance for this is free, but registration is required.

Click this link for program contents, the list of presenters, and to register.

PUZZLES

1. Overlapping sets

In a cohort of 100 students, 70 passed in Mathematics, 60 passed in English, and 50 passed in Science.
(a) What is the largest number who could have passed in all three subjects?

(b) What is the smallest number possible of students who passed in all three subjects?

2. Ordered products

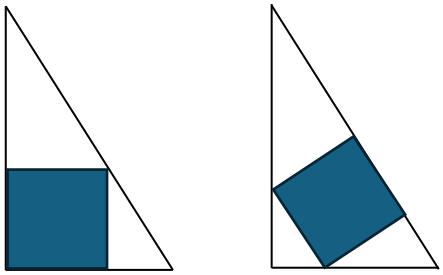
Four positive numbers are to be chosen in the order $a < b < c < d$. If pairs of these numbers are multiplied together, six products are obtained: ab, ac, ad, bc, bd, cd. The first three numbers in this list have definite order and so do the last three, but the relative sizes of ad and bc are uncertain.

Find examples of sets of numbers $a < b < c < d$ such that $ad < bc$ and such that $ad > bc$.
Is it ever possible that $ad = bc$?

3. long multiplication

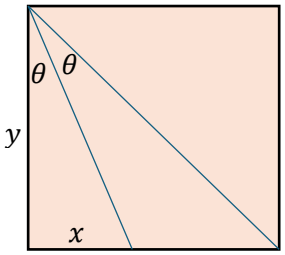
$$1 \times 1 = 1$$
$$11 \times 11 = 121$$
$$111 \times 111 = 12\,321$$
$$\vdots$$
$$111\,111\,111 \times 111\,111\,111 = ?$$

4. Squares in a triangle



Both triangles have sides in the proportions 3:4:5. Which square is larger?

5. Sides and angles



The figure is a square with side y. Given that $x + y = 8$, what is the area of the square?

6. Mathematical potatoes

In the unlikely event that 100 kg of potatoes consisting of 99% water are left out to dry until they contain 98% water, what is their new weight?

7. Algebra rearranged

Given $a = \frac{1-b}{1+b}$, make b the subject of the equation.

AMSI SCHOLARSHIPS FOR GIRLS

Applications are open for the AMSI Specialist Maths Highschool Scholarships for Girls.

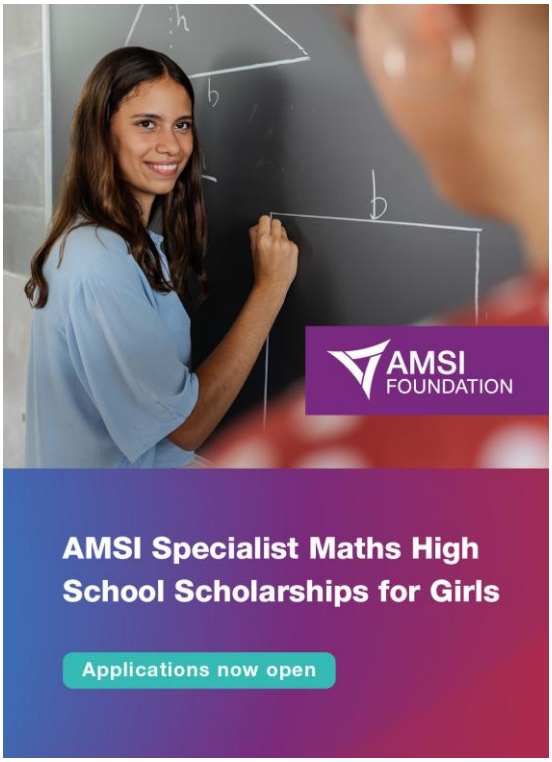
The AMSI Specialist Maths High School Scholarships for Girls 2027/28 is open to current year 10 girls Australia-wide, who intend to study Specialist Maths, or accepted equivalent in NSW and Tasmania in year 11 in 2027 and year 12 in 2028.

Scholarship recipients will have access to support from the AMSI maths teaching specialists, the opportunity to attend AMSI programs, meet current university maths students and industry partners – to be inspired by all that continuing to study maths has to offer. You can read about previous recipients here.

Scholarships are for two-years, valued at $3000 per year, and awarded in our donor names. In 2027/28 we have De Vere-Hudson and Jane Street Scholarships.

Scholarship applications close 23 October.

https://amsi.org.au/amsi-foundation/amsi-maths-scholarships/



NEW PRIMARY JOURNAL

A new journal has been launched to occupy the niche vacated by the now defunct Australian Primary Mathematics Classroom.

The journal –

Australian Primary Mathematics Teaching

is a free, national, open-access publication for everyone involved in teaching and learning mathematics in the early and primary years.

It is published online through Sydney Open Journals and the University of Sydney library by editors Katherine Cartwright, Jane Hubbard and James Russo.

A click on the logo above will link to the journal's home page and the first edition editorial that explains everything readers and contributors might wish to know about APMT.

THE 2026 CMA COMMITTEE

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Theresa Shellshear is CMA's COACTEA representative.

Bruce Ferrington is CMA's AAMT representative.

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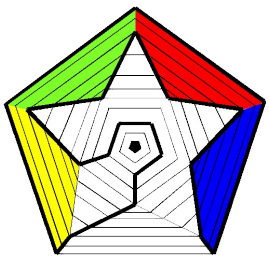
ABOUT THE CMA

The Canberra Mathematical Association (Inc.) is the representative body of professional educators of mathematics in Canberra, Australia.
It was established by, among others, the late Professor Bernhard Neumann in 1963.
It continues to run - as it began - purely on a volunteer basis.
Its aims include:

- the promotion of mathematical education to government through lobbying,
- the development, application and dissemination of mathematical knowledge within Canberra through in-service opportunities, and
- facilitating effective cooperation and collaboration between mathematics teachers and their colleagues in Canberra.

Short Circuit is the newsletter of the Canberra Mathematical Association Inc.
PO Box 3572
Weston ACT 2611, Australia
E-mail: canberramaths@gmail.com
http://www.canberramaths.org.au/

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A Hamilton circuit on the vertices of a dodecahedron