SHORT CIRCUIT

Canberra Mathematical Association Inc.
VOLUME 17 NUMBER 9 SEPTEMBER 2026

NEWS AND COMMENT

This edition announces several professional development opportunities, the first of which is the workshop by Jenny Missen on 3 September.

See page 2.

News of the launch of a new journal (online) to fill the gap left by the loss of the AAMT publication APMC, will be of interest to teachers in the primary and lower secondary areas. The new journal is free to read and accepts a broad range of contributions.
See page 3.

The Australian Mathematics Competition, run by the Australian Maths Trust, launched its first edition 49 years ago. Its 50th edition next year will add a Primary Paper for years 1-2. There is a free pilot offering for 2026. See page 4.

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.

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CANBERRA MATHEMATICAL ASSOCIATION

WICKED WORLD

A workshop: *Preparing the adolescent brain for the Wicked World* will be presented by Jenny Missen on Thursday, 3 September 2026, 4 p.m. - 6 p.m. at Daramalan College.

For full details, see the announcement in the August edition of Short Circuit.

This workshop is free for CMA Individual Members, two attendees from Institutional Members are free, and the cost is $30 for non-members.

Non-members who join CMA by 3 September get free admission plus 2027 membership.

TQI accredited

FRACTIONS-THE FRACTURE POINT

Dr Uri Onn, of the Mathematical Sciences Institute at ANU will hold a free workshop, targeted to primary teachers, on Saturday 19th September.

The aim is to raise awareness of and discuss tools for preparing students and for teaching fractions. Fractions are among the most difficult topics in primary school mathematics, and arguably across all of K–12. We will explore why fractions are so challenging and suggest how intentional preparation in the early years can be a game changer.

Dr Onn is a lecturer at the Mathematical Sciences Institute at the ANU. His mathematical research is in group theory, the mathematical language of symmetry. He takes a keen interest in maths education and was involved in teacher training and curriculum development in Israel before moving to Australia 10 years ago.

Check the CMA website soon for time and place.

AAMT - PERSPECTIVES ON PEDAGOGY

From AAMT:
We're delighted to announce AAMT's inaugural **Keynotes Conference: Perspectives on Pedagogy** - a full day of deep, insight-rich keynotes from internationally recognised mathematics education scholars and practitioners, live online via Zoom Webinar on **Saturday 17 October 2026**.

Each one-hour session explores a distinct pedagogical approach or aspect - the thinking behind it, what it looks like in practice, and how to adapt it for your context - followed by moderated Q&A.

The program spans the breadth of contemporary mathematics pedagogy, from Big Ideas in school mathematics and Singapore's approach to making challenging problems accessible, to culturally sustaining pedagogy and the question of what students truly walk away with after years of learning maths.

Presenters:
Professor Colin Foster | Loughborough University, UK - *The Big Ideas in School Mathematics*
Dr Yeap Ban Har | Pathlight School, Singapore - Challenging Problems for All: The Pedagogy That Makes It Possible
Dan Meyer | Amplify, USA - *Creating Creative Maths Classes*
Professor Jodie Hunter | Massey University, New Zealand - *Culturally Sustaining Pedagogy*
Dewey Gottlieb | National Council of Teachers of Mathematics, USA - *Rethinking Our Pedagogical Goals: Do our goals align with what students actually experience?*

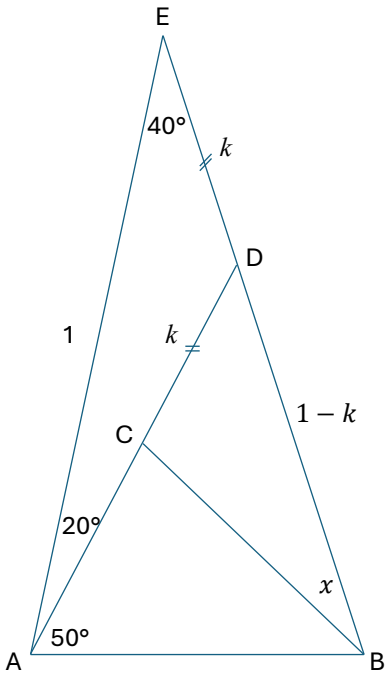
The conference is preceded by a public lecture - the **Hanna Neumann Lecture** - on the evening of **Friday 16 October 2026**, delivered by AAMT Board Chair Professor Catherine Attard. This is free for all to attend, but registration is required.

Recordings will be available to registered delegates for 60 days following the conference.

Early-bird pricing until Monday 31 August 2026:
Members of AAMT affiliated associations: $200 excl. GST | non-members: $225 excl. GST

Click this link to learn more and register.

PUZZLE SOLUTION FROM VOL. 17 NO. 8



Some points and lengths have been labelled. We deduce that triangle ABE is isoceles and that angle CDB is 60°. For clarity, set the equal sides to 1.

In triangle BCD, using the cosine rule,

$CB^2 = k^2 + (1-k)^2 - 2k(1-k)\cos 60°$

That is, $CB = \sqrt{3k^2 - 3k + 1}$.

By the sine rule, $\frac{\sin x}{k} = \frac{\sin 60°}{CB}$.

Hence, $\sin x = \frac{k\sqrt{3}}{2\sqrt{3k^2-3k+1}}$.

In triangle ADE, $\frac{k}{\sin 20°} = \frac{1}{\sin 120°}$.

That is, $k = \frac{2\sin 20°}{\sqrt{3}}$.

Substituting for k in the expression for $\sin x$, leads to

$\sin x = \frac{\sin 20°}{\sqrt{4\sin^2 20° - 2\sqrt{3}\sin 20° + 1}}$.

The value $x = 40°$ seems to satisfy this formidable equation, but more work is needed to be certain. Double angle formulae and trigonometric sums will be useful.

Observe that $2\sqrt{3} = 4\sin 60°$, and $4\sin^2 20° = 2(1 - \cos 40°)$, so that the denominator simplifies to $2\cos 40° - 1$.

Thus, $\sin x = \frac{\sin 20°}{2\cos 40° - 1}$.

We can write,

$$\sin x = \frac{\sin 20°}{2\cos 40° - 1} \cdot \frac{\sin 40°}{\sin 40°}$$

$$= \frac{\sin 20° \sin 40°}{\sin 80° - \sin 40°}$$

$$= \frac{\sin 20° \sin 40°}{2\cos 60° \sin 20°}$$

$$= \sin 40°$$

which confirms that $x = 40°$.

[Thanks are due to our Hobart correspondent Ed Staples for help on this one.]

NEW 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.

MIND THE GAP

Writing for The Conversation of August 12, 2026 about the recent NAPLAN results, **Andres Molina** Senior Research Fellow, Mitchell Institute/Centre for International Research on Education Systems, Victoria University, says:

> One important element missing from the debate so far has been how students from disadvantaged backgrounds are falling further behind their advantaged peers.
>
> This gap was already a problem before the latest data. But the most recent results show how things are getting worse.

Click this link to access the article.

MATHS IN THE STREET

CMA committee members will soon be visible among the public, talking about and demonstrating mathematics at some local shopping centres.

Events are planned for Saturday 5 September at Hawker shops between 10 a.m. and 12, and on Saturday 17 October CMA will be at Curtin shops.



THE 2026 CMA COMMITTEE

President	Aruna Williams	Erindale College
Vice President	Bruce Ferrington	Radford College
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	Andrew Wardrop	
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	Linda Goth	
	Katrina Simms	Daramalan College
	Emily Peterson	AMT
	Peter McIntyre	University of NSW Canberra

Theresa Shellshear is CMA's COACTEA representative.

Aruna Williams is CMA's AAMT representative.

Short Circuit is edited by Paul Turner.

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ABOUT THE CMA

The Canberra Mathematical Association (Inc.) is the representative body of professional educators of mathematics in Canberra, Australia.

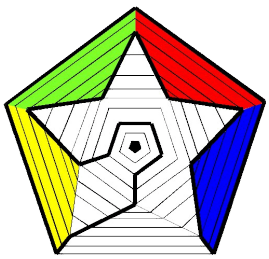
It was established by, among others, the late Professor Bernhard Neumann in 1963. It continues to run - as it began - purely on a volunteer basis.

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.
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A Hamilton circuit on the vertices of a dodecahedron