SHORT CIRCUIT

Canberra Mathematical Association Inc.

VOLUME 17 NUMBER 8 AUGUST 2026

NEWS AND COMMENT

Fun fact:
Around the shortest day of the year, there is a latest sunrise time and an earliest sunset time, but these do not occur on the same day.

This edition of Short Circuit has things to do and things to think about, and some resources for teaching. The puzzle on page 5 is challenging.

For teachers whose classes have prepared entries for the Canberra Mathematics Talent Quest, instructions for submitting them may be found on page 4.

Coming to a shopping centre near (or far from) you: the CMA committee will soon run two Maths in the Street events. The first is on Saturday 5 September at Hawker shops, and the second is on Saturday 17 October at the Curtin shops.

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:

2 Things to do
3 Puzzles
4 Professional Development

CANBERRA MATHEMATICAL ASSOCIATION

RESOLVE

From The Australian Academy of Science Education team:

It's hard to believe we're already at the halfway point of the school year. We hope you're looking forward to a well-earned break and the opportunity to recharge before another busy term.

The reSolve team at the Australian Academy of Science has been busy developing new teaching sequences that blend strong pedagogy with powerful mathematical ideas, giving you practical, classroom-ready resources to support inquiry-based learning.

But don't just take our word for it, explore the latest reSolve and Primary Connections resources for yourself!

BSSS

The ACT Board of Senior Secondary Studies has released a discussion paper with the following

PROPOSED RECOMMENDATION

> That all students complete a course under the Mathematics Framework as a requirement for the award of an ACT Senior Secondary Certificate.

The proposal, if adopted, would have workforce implications at the very least. The discussion paper can be accessed through the BSSS website.

AITSL

The Australian Institute for Teaching and School Leadership is conducting a survey as part of its review of The Australian Professional Standards for Teachers. Your input is invited.

Access the survey and information about the review at this link.

NMSS 2027

Comprehensive information about the Summer School is available on the NMSS website.

ANU MSI

From the Mathematical Sciences Institute at ANU:

Join us for a Public Lecture by Professor Uri Onn from the Mathematical Sciences Institute (MSI), at the Australian National University as part of National Science Week.

On rational and irrational numbers, strings and harmony

Abstract

This lecture aims at introducing the general audience to a beautiful relationship between maths, physics and music. We will explore the evolution of ideas that led to the equal temperament, the 12-note system which prevails in much music worldwide. The main characters in this story are the wave equation in a string and its pure solutions, which are given by waves with integral periods; the relations between them which are rational numbers; and finally, a twist in the plot where equal temperament is actually done with irrational numbers to achieve symmetry.

The lecture will be accompanied by live music.

This public lecture is accessible for students in year 11 and 12.

Date and time

18 Aug 2026 6:00pm - 8:00pm

Click this link for more information and to register.

CMA WORKSHOP

Preparing the adolescent brain for the Wicked World

Presented by Jenny Missen

Thursday, 3 September 2026, 4 p.m. - 6 p.m.

Daramalan College

This workshop will focus on how to assess students with respect to Motivation and the General Capability of Critical and Creative thinking, and will give guidelines on how students develop and learn these capabilities.

Recent research on motivation and analytical thinking are explored in the context of the students within the teacher's individual classes, as well as the cohort of students at the school in which the teacher(s) attending teach.

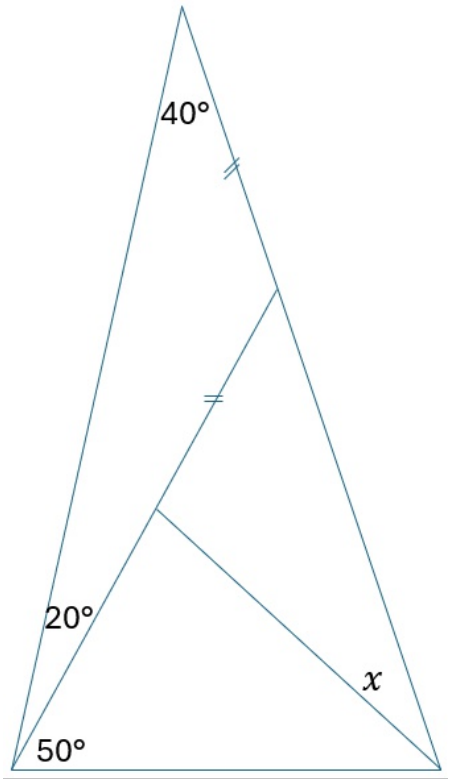
Free for CMA Individual Members. Two attendees free for Institutional Members. $30 for non-members.

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

TQI accredited

PUZZLE

Not easy



SOLUTIONS TO VOL 17 NO 7 PUZZLES

1 Comparison

Without calculating any square roots, decide which is the larger of $\sqrt{26}$ and $\sqrt{17}+1$.

The square of $\sqrt{26}$ can be written $18 + 8$, and the square of $\sqrt{17}+1$ is $18+2\sqrt{17}$. So, the answer depends on which is the larger of 8 and $2\sqrt{17}$, equivalently, which is the larger of 4 and $\sqrt{17}$. It follows that $\sqrt{17}+1 > \sqrt{26}$.

2 Four swallows

$$\sqrt{1^3} = 1$$
$$\sqrt{1^3+2^3} = 1+2$$
$$\sqrt{1^3+2^3+3^3} = 1+2+3$$
$$\sqrt{1^3+2^3+3^3+4^3} = 1+2+3+4$$

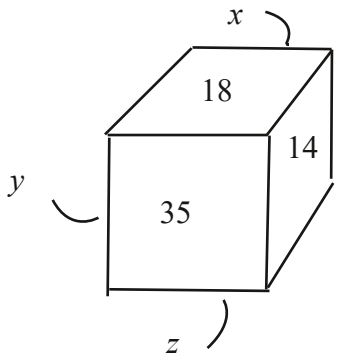
Beware! The pattern does not continue.

3 Conundrum

$$\frac{23}{30}+\frac{27}{45}$$

The confusion came from the calculation of the mediant of the two fractions in combining two test scores. This arises naturally and the fact that it conflicts with the usual arithmetic sum may go unnoticed by the teacher.

4 Hexahedron with primes



If *x, y* and *z* are prime numbers and the sum of pairs of numbers on opposite sides is a constant, what are the values *x, y* and *z*?

The side opposite 18 is greater than 17, and the side opposite 14 is greater than 21 (because the sums are greater than 35). So, those sides are odd primes and the sums are odd. The unique sum is therefore odd. The side opposite 35 must be the only even prime, 2. Hence, the unique sum is 37. The oppostie sides must be 18+19, 14+23, and 35+2.

THE CANBERRA MATHEMATICS TALENT QUEST 2026

Reminder
Entries must be submitted by Friday 24th August 2026.

Send entries to andrew.wardrop20@gmail.com

Models and other non-digital submissions may be posted to PO Box 3572, Weston Creek, ACT 2611

The handbook is available on the CMA webpage. Updates will be provided in Short Circuit and on the CMA webpage:
http://www.canberramaths.org.au/

Students may participate in the quest in one of three categories:
- Submit an individual entry
- Be part of a small group (up to 5 students)
- Be part of a whole class entry (6 or more students)

Entry is free.

All students from Kindergarten to Year 12 in the ACT are able to submit an entry.
Schools can submit up to two entries per category (individual, group or class) per year group to be assessed by an ACT judging panel.

MASA CONFERENCE JULY 2026

Jason Strain, ex-president of the Mathematical Association of South Australia writes:

> I was blown away by the opening presentation by Jason Sharples, FTSE, FRSN, FMSSANZ and Yuka Saponaro looking at the Mathematics of Bushfires.
> It was such an inspiring demonstration of applications of Mathematics, as well as [the] connection between First Nations knowledge with modern Mathematics.
> Brilliant start to day 2 of Annual Conference for Mathematical Association of South Australia.

Yuka has also received a warm thankyou note for the keynote address, jointly delivered with Jason Sharples, from Tim Budenburg, president of MASA. Well done Yuka!

AI UNPLUGGED

The School of Cybernetics of the ANU College of Engineering, Computing & Cybernetics is running two days of free events under the banner
Unplugged education in the age of AI.
The program:

MONDAY 10 AUGUST
12:00 pm - 1:00 pm
Unplugged Education in the Age of AI | Public talk
Innovation Space, Level 2, Birch building
Professor Tim Bell and Dr Ben Swift explore the value of unplugged approaches to learning through their experiences in AI and computing education.

1:00 pm - 1:30 pm
Lunch
In the kitchen, outside the Innovation space

1:30 pm - 2:30 pm
CS Unplugged | Workshop
Innovation Space, Level 2, Birch building
Professor Bell and Dr Henry Hickman demonstrate the unplugged approach in all its glory! This session is full of fun and practical activities that teach core concepts in computational thinking.

TUESDAY 11 AUGUST
10:00 am – 12:00 pm
LLMs Unplugged | Workshop
Innovation Space, Level 2, Birch building
Join the School of Cybernetics in this interactive session where you'll learn the basics of Large Language Models (LLMs) - the technology behind the mind-boggling abilities of ChatGPT, Claude and Gemini - without actually touching any tech. This workshop is **TQI** accredited for two hours of recognised teacher professional development.

Registration is essential. For further details and to register, click this link.

COACTEA

The Council of ACT Education Associations will hold an EXPO of professional associations at ACU on Thursday 13 August.

THE 2026 CMA COMMITTEE

President	Aruna Williams	Erindale College
Vice President(s)	Bruce Ferrington	Radford College
	Peter McIntyre	University of NSW Canberra
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	Andrew Wardrop	
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	Bernadette Matthew	Mother Teresa School
	Linda Goth	
	Katrina Simms	

Theresa Shellshear is CMA's COACTEA representative.
Bruce Ferrington is CMA's AAMT representative.
Short Circuit is edited by Paul Turner.

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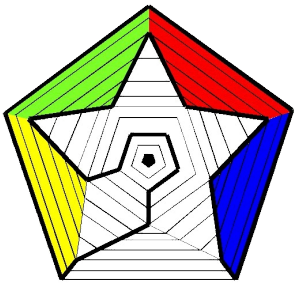
ABOUT THE CMA

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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E-mail: canberramaths@gmail.com
http://www.canberramaths.org.au/

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The vertices of a dodecahedron belong to a Hamilton circuit.