SHORT CIRCUIT

Coming Events:

18 August—CMA conference, ADFA

14 November—ACM AGM

Wednesday Workshops:

NEWS AND COMMENT

CMA committee members were gratified by the amount of interest shown in the recent Maths300 workshop presented by Bruce Ferrington. Close to 90 people attended. It is likely that a further session will be arranged for those who missed out and there should be more on Maths300 at the Conference in August.

AAMT has just announced some enhancements to Maths300 and ongoing developments can be expected.

The CMA Conference this year (18 August, at ADFA) will focus on the theme of Space. The title *Watch this Space* suggests not indecision but the vast variety of content that could be included. The conference organising committee is keen to hear from anyone who would like to give a presentation. Contact the conference committee if you are interested in presenting.

Congratulations to the teams from Radford College, Lyneham High School and Marist College for their entries in the International Mathematical Modelling Challenge (IM²C). The entry from Radford College will now be judged against 54 team solutions and reports from around the world in the IM²C 2018 international round. For more information see

www.immchallenge.org.au.
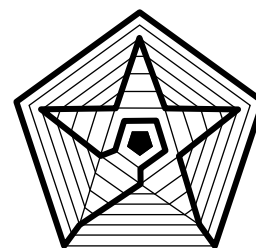
MEMBERSHIP

Join or renew your membership for calendar year 2018

A membership application form can be accessed from the CMA website: http://www.canberramaths.org.au/index.html

CMA membership includes automatic affiliation with the Australian Association of Mathematics Teachers and a free AAMT journal.

Members are entitled to attractive rates for CMA professional development events and the annual conference.

CMA members may attend conferences of other AAMT affiliates, MAV, MANSW, etc. at member rates.

Note: Receipts for membership and other payments are sent out by e-mail. If you have paid for your membership but have not received a receipt or if your AAMT journal(s) have not been arriving, please advise CMA treasurer Paul Turner or another committee member.

CANBERRA MATHEMATICAL ASSOCIATION

PUZZLES

1. What is the relationship between angles *a, b* and *c*? Assume 3 squares.
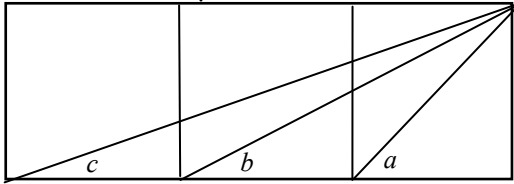
2. Three mathematicians *A*, *B* and *C* have had a disagreement, and the only honorable way they can see to resolve it is by a pistol duel at dawn.

   On the following Sunday morning, they will meet at an agreed time and place and stand with their loaded pistols, at the corners of an equilateral triangle of side 20 metres.

   These are the rules of the duel:

   1. A mathematician who is shot, is dead.

   2. When choosing where to aim, a mathematician selects the strategy that maximises their chance of survival,

   3. A is a crack shot and always hits the target. B is only 80% accurate and C is only 50% accurate.

   4. Lots will be drawn to see who will shoot first.

   5. After any shot is fired, the next living mathematician to fire will be the one that is closest clockwise to the shooter.

   5. All pistols can be continually reloaded.

   6. The duel finishes when one mathematician is left alive.

   Determine each mathematician's chance of survival.

3. In the diagram, we wish to make the connections (*A,a*), (*B,b*), (*C,c*) and (*D,d*) without any edge crossings. This would not normally be difficult but in this case there is the restriction that some of the vertices are on the boundary of the space containing them and going outside the space is not permitted. A solution exists!
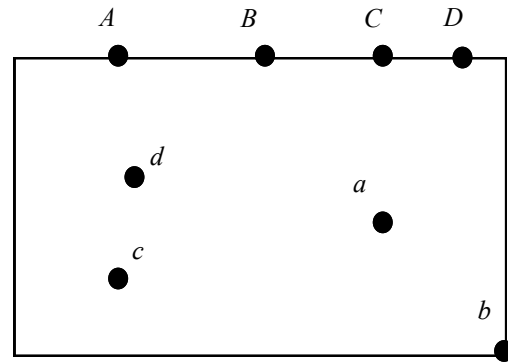
4. Vlotina Souflias brought to the editor's attention the following finger multiplication procedure. By it, pairs of numbers from 6 to 10 can be multiplied by those of us who have forgotten their tables. Begin by numbering the digits of both hands 6,7,8,9,10 beginning with the thumbs.
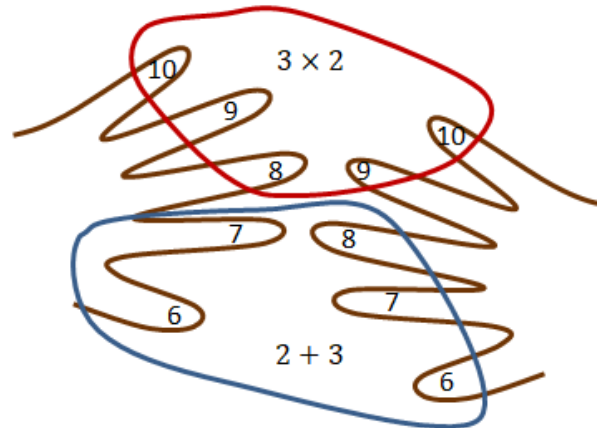
In the picture, the hands are in position to multiply 7 by 8. Finger 7 on the left is aligned with finger 8 on the right. We count the number of fingers at or below the 7 and the 8, the fingers in the

SHORT CIRCUIT

ring. This number will be in the tens column in the product, that is 50 in this example. The fingers above 7 and above 8 are counted and these numbers are multiplied. In the example this gives 6. The complete product is the sum of the 50 and the 6.

This works for all numbers from 6 to 10, but why?

We give an explanation at the bottom of the next column. It illustrates the power of algebra to clarify baffling problems.

A remaining mystery is that of how this trick was discovered and by whom.

There is a YouTube video that sets out the method.

CMA MERCHANDISE

CMA has items for sale including:

Canberra Mathematics Association Navy Polo shirts $36, Pi Earrings $15, Easy as Pi badges and Pi pins $8.

CMA is looking for someone to take on the responsibility for merchandise, taking over from Elaine Hooke who has stepped down after years of excellent service in the role.

CONTRIBUTE TO SHORT CIRCUIT

Short Circuit welcomes your contributions and your feedback. Communicate with us through the CMA email address: canberramaths@gmail.com

CONFERENCES AND EVENTS

ATSIMA

Aboriginal and Torres Strait Islander Mathematics Alliance Conference: ATSIMA, together with the Wurundjeri people of the Kulin Nation, is excited to announce its 3rd Aboriginal and Torres Strait Islander Mathematics Alliance conference. The conference will bring together a collaboration of leaders, educators and stakeholders from Community, education, research, and business sectors around Australia. The conference will take place 10-13 July, 2018 and be hosted at the RMIT University - Melbourne City. Click Here For Info.

IEEE TALE 2018

TALE is the IEEE Education Society's flagship Asia-Pacific (Region 10) conference, this year to be held at Wollongong, Australia, 4-7 December 2018

Organisers are calling for papers and presentations, Submission Deadline: 11 June 2018

Go to http://tale2018.org/ for details and expected benefits for K-12 teacher participants.

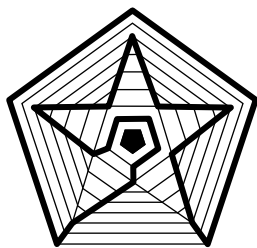## PUZZLE EXPLANATION

$$56 = 10(2 + 3) + 3 \times 2$$

Let a, b be numbers in $\{6,7,8,9,10\}$.
According to the procedure, we calculate

$$10\big((a - 5) + (b - 5)\big) + (10 - a)(10 - b)$$

$$= 10(a + b - 10) + 100 - 10(a + b) + ab$$

$$= ab$$

NEWSLETTER OF THE CANBERRA MATHEMATICAL ASSOCIATION INC

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We're on the Web!
http://www.canberramaths.org.au/

THE 2018 CMA COMMITTEE

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	Yvonne McGarry	Canberra Girls Grammar School
	Jane Crawford	Canberra Girls Grammar School

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.
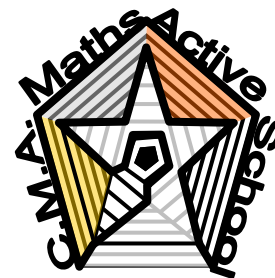
Its aims include

* 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 edited by Paul Turner.

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Find us on Facebook

CANBERRA MATHEMATICAL ASSOCIATION

2018 *MATHEMATICS CONFERENCE*

Watch this Space

Saturday 18 August 9–5

Australian Defence Force Academy

Six sessions of talks/workshops for all levels

Great prizes   All food + President's drinks

Trade stalls   Maths merchandise

Registration: $70 member

$30 concession $100 non-member

Details and registration soon at

canberramaths.org.au

Contact: *p.mcintyre@adfa.edu.au*