SHORT CIRCUIT

Newsletter of the Canberra Mathematical Association INC

VOLUME 10 NUMBER 2

APRIL 2019

Coming Events:

9-11 July. AAMT conference, Brisbane.
17 August, CMA conference
13 November, 2019—AGM

Wednesday Workshops:
Term 2 week 4: reSolve (primary)
Workshop (colleges)
Term 4: AMT

NEWS AND COMMENT

Look out for CMA professional development opportunities in term 2. These are likely to be on Statistics and Probability for the secondary levels and on reSolve materials for the junior years. More details will be circulated shortly by e-mail.

The CMA conference this year will again be at ADFA. When booking opens it will be wise to get in early as a limit of 200 attendees has been proposed. This will make it possible to plan for catering and other things with better precision. A feature this year will be Guided Tours of ADFA.

We expect to provide a full report in the next issue of Short Circuit on the successful Nature Play project that has recently been run by Bruce Ferrington.

Several Canberra schools have entered teams in the 2019 International Mathematical Modelling Competition. Their submissions are now under consideration by the organisers at ACER in Melbourne.

MEMBERSHIP

CMA memberships expire on 31 Dec. each year

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

CMA membership includes automatic affiliation with the Australian Association of Mathematics Teachers and a full-year subscription to a 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.

CANBERRA MATHEMATICAL ASSOCIATION

PUZZLES

1. In the following system of equations, more than one value of k exists for which the system has no solution. (In particular, if $k = 1$ or if $k = -2$ the three equations are inconsistent.) For a great many values of k, there is exactly one solution. (For example, if $k = 1/2$ we must have $x = -2$, $y = 2$ and $z = 4$.) But, is there a nice way to show that there is *no* real number k for which the system has more than one solution?

$$x + y + kz = 2$$
$$x + ky + z = 3$$
$$kx + y + z = 5$$

2. This extended puzzle comes from Ed Staples in Ballarat, Victoria.

   Two sellers find themselves sitting in adjacent Ballarat market stalls selling ceramic dinner plates. Seller A has 30 plates marked at 2 for one dollar. Seller B also has 30 plates but priced at 3 for a dollar. Rather than being in competition, they decide to put all the plates into one pile and to sell them all at 5 for two dollars, expecting the same total profit. Alas, they come up one dollar short! Can you explain why their reasoning is faulty?

3. Referring to Ed's puzzle above, it turns out that there are two distinct conditions in each of which the sellers' strategy would produce the same result as if they had traded separately. What are those conditions when they each have T plates to sell? (Hint: Assume A sells T plates at m for $\$a$ and B sells T plates at n for $\$b$ and exercise your algebra skills.)

4. A 'good' puzzle often leads to further questions. Referring again to Ed's puzzle:
   (*i*) How might a creative puzzler adjust the numbers to make the difference between trading separately or together come to some amount other than $1?
   (*ii*) What complications arise to do with distribution of the revenue and with the comparison between trading separately or together, when the vendors bring unequal quantities of plates to the market?

NATIONAL SCIENCE WEEK

10-18 August, 2019

SEED GRANTS AVAILABLE IN THE ACT

Do you have a great idea for an event in the ACT for this year's National Science Week? Applications are now open for seed grants of up to $1000 to boost your event and all you need to do is submit a brief application by May 26.

Events take many forms, creatively communicating how science is a vital part of our everyday lives by engaging an interest in the areas of science, technology, engineering and innovation.

To be eligible for the grant, your event needs to be open to the general public, and take place in the ACT as part of National Scince Week this year.

If you're approved for the grant you'll also get support from the ACT National Science Week Committee with event planning, promotion and more.

Complete the application form by 26 May 2019.

Applications need to include:

- An overview of the project aims and expected outcomes;
- Details of how the project will be delivered; and

A brief budget detailing proposed expenditure of the grant and any in-kind contributions (eg. staffing from the venue or organisation).

RESOLVE & MATHS 300

AAMT provides workshops to support Maths 300 and reSolve. Contact Matt Skoss (mskoss@aamt.edu.au) for information about professional learning.

CONFERENCES

MERGA 2019

30 June 2019 – 4 July 2019 Curtin University, Perth, WA. The conference will also feature a Teachers' Day on the 29 June 2019.

The theme of the 2019 conference is Research Impacting Classroom Practice.

http://www.promaco.com.au/events/MERGA/

AAMT 27TH BIENNIAL CONFERENCE

9-11 July 2019, South Brisbane, Qld, Australia.

Theme: 'Why Maths? Inspiration beyond the classroom'.

The AAMT (QAMT) 2019 conference has a focus on inspirational mathematics teaching, collaborating with our communities and the future of mathematics education.

Key speakers include Dr Alan Finkel, Australia's Chief Scientist; Dr Cathy Foley, CSIRO Chief Scientist; James Tanton (MAA - US); Dr Toh Tin Lam (NIE – Singapore); Dr Catherine Attard; and other representatives from education, government and industry (yet to be announced).

For registration and information visit the website.

15TH INTERNATIONAL CONFERENCE OF THE MATHEMATICS EDUCATION FOR THE FUTURE PROJECT

Theory and Practice: An Interface or A Great Divide?
4-9 August 2019, Maynooth University, Kildare, **Ireland**

The Mathematics Education for the Future Project was founded in 1986 to develop innovation in mathematics, statistics, science and computer education. Since 1999 there have been 14 conferences throughout the world. The conferences are renowned for their friendly and productive atmosphere and attract many of the movers and shakers in education world-wide.

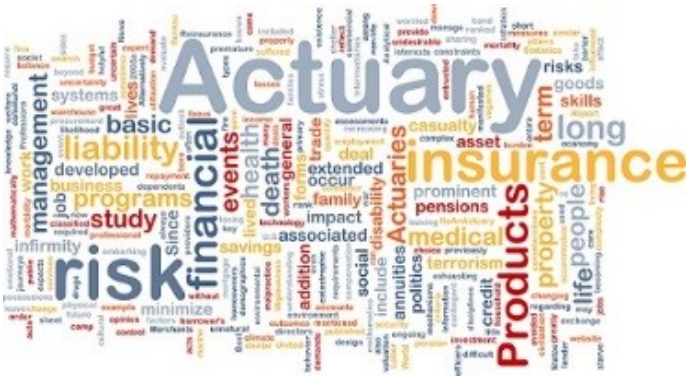
Download the first announcement and call for papers: http://directorymathsed.net/public/Ireland/IrelandConferenceFirstAnnouncement.docx
For queries, email: alan@cdnalma.poznan.pl

CMA 2019

17 August, ADFA

Aimee Albrecht is confirmed as a keynote speaker. Further details to be announced soon.

INTRODUCTION TO ACTUARIAL SCIENCE



The Australian National University (ANU) is running a special version of its popular Introduction to Actuarial Science course for Year 11/12 students in Australia.

Students can register and start at flexible times. The course is a Massive Open Online Course (MOOC) and is FREE for all students. Students who complete the course may be eligible for a scholarship if they subsequently take up an Actuarial Science degree course.

Click here for more information and to register interest

NEWSLETTER OF THE CANBERRA MATHEMATICAL ASSOCIATION INC

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

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.

THE 2019 CMA COMMITTEE

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Short Circuit is edited by Paul Turner. **ISSN 2207-5755**

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