This year the Australian Mathematics Trust prepared two teams to compete at premier international competitions for secondary students, the International Mathematical Olympiad (IMO) and the International Olympiad in Informatics (IOI). The mathematics team comprised six members and the informatics team comprised four members.

The students were chosen for these teams by their outstanding results over a twelve month period. They were then mentored leading up to the Olympiads.

In preparation for the IMO, the Australian team trained with the British team for what is known as the 'Maths Ashes'. The teams sit practice exams, the final exam results are tallied and the winning team is presented with the ashes. The British team were the winners this year and so the ashes remain in Britain until the next IMO in 2013.

The IMO teams competed in Mar del Plata, Argentina in July and the Australian team was placed 27th out of 100 countries. The IMO team members were:

KAIMYN CHAPMAN, Silver Medal
All Saints Anglican School QLD, Year 12

NANCY FU, Bronze Medal
James Ruse Agricultural High School NSW, YEAR 12

ALEXANDER GUNNING, Bronze Medal
Glen Waverley Secondary College VIC, Year 9

JASON KWONG, Bronze Medal
Sydney Grammar School NSW, Year 11

JOHN PAPANTONIOU, Bronze Medal
Sydney Grammar School NSW, Year 12

YANNING XU, Silver Medal
St Peter's College SA, Year 12

The IOI teams competed in Lake Garda, Italy in September and the Australian team members were:

MICHAEL CHEN, Bronze Medal
Scotch College VIC, Year 9

DANIEL GOLDBACH, Bronze Medal
Emanuel School NSW, Year 12

JOSHUA LAU, Silver Medal
James Ruse Agricultural High School NSW, Year 11

NICHOLAS LAVER
Hunter Christian School NSW, Year 11

Further details can be found on the AMT website at www.amt.edu.au.

At the Closing Ceremony of the IOI, the flag was formally handed over to the Australian delegation. Australia will be hosting the 2013 IOI in Brisbane in July 2013 (see article on Page 3 for more information).

- *Top, the IMO team after the closing ceremony, from left: John Papantoniou, Alexander Gunning, Jason Kwong, Nancy Fu, Kaimyn Chapman and Yanning Xu.*
- *Above, the IOI team after the closing ceremony, from left: Nicholas Laver, Joshua lau, Daniel Goldbach and Michael Chen.*

For the first time, Australia has won the right to host the International Olympiad in Informatics (IOI) in 2013. The University of Queensland (UQ), in partnership with the Australian Mathematics Trust (AMT), will host the Olympiad at its St Lucia campus in Brisbane from 6 to 13 July 2013.

The International Olympiad in Informatics (IOI) is the premier competition worldwide for senior secondary school students in the field of computer science/programming. Formed under the auspices of UNESCO, it is one of the five core International Science Olympiads recognised by Australia, which covers Biology, Chemistry, Informatics, Mathematics and Physics. These Olympiads are annual worldwide competitions for exceptionally talented secondary school students and represent the pinnacle of achievement in each discipline.

Second largest of the Olympiads, the IOI has been running since 1989. Australia has participated since 1999 and in recent years has achieved exceptional results.

Competition tasks are of algorithmic nature; however, the contestants have to show such basic IT skills as problem analysis, design of algorithms and data structures, programming and testing. The winners of the IOI are some of the best young computer scientists in the world. Careers in informatics can include software engineering, information architecture, interaction design and systems analysis.

The IOI 2013 will be a significant event. Teams of four secondary school students from around 80 countries will compete over the eight days. Each team will be accompanied by at least two team leaders. In addition, there will be observers, officials and volunteers, bringing the anticipated attendance to about 700 people. The UQ Centre will be the competition hall and accommodation is being provided at six of the ten residential colleges on campus.

See www.ioi2013.org for more details and updates.

Attention Brisbane Schools

IOI 2013 needs you!

A large number of volunteers will be required to ensure the event is an outstanding success. If your school would like to be involved, please email volunteer@ioi2013.org. We are particularly looking for senior secondary students to act as team guides. Knowledge of a foreign language would be an asset.

The 35th AMC was held on Thursday 2 August and was sat by hundreds of thousands of students worldwide.

We believe this to be the largest event in Australia for which participants pay an entry fee. It is the original competition which started in 1978 and has been run every year since then. There is a Middle Primary Paper (Years 3 and 4), Upper Primary Paper (Years 5 and 6), a Junior Paper (Years 7 and 8), an Intermediate Paper (Years 9 and 10) and a Senior Paper (Years 11 and 12).

Results for this year's competition have been distributed to participating schools and over 900 students were awarded prizes. This year the prizes are redeemable online through the AMT bookshop where students can view all our products and choose the one they want.

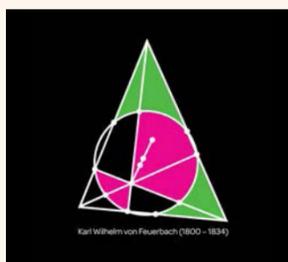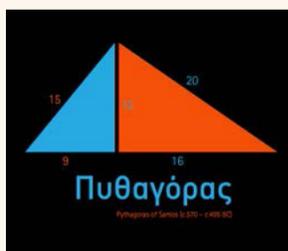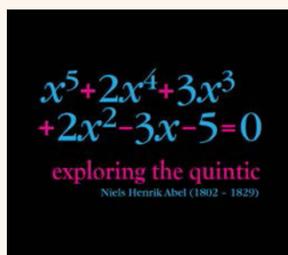The 2012 awards have been announced and there are are 28 Junior, 28 Intermediate and 14 Senior medallists and two perfect scores. The Australian medals will be presented by His Excellency the Hon Alex Chernov AC QC, Governor of Victoria, at Government House, Melbourne, on Friday 9 November 2012.

Other presentation ceremonies will take place in Australia and SE Asia including medal presentations in Hong Kong, Indonesia, Malaysia, New Zealand, Philippines and Singapore. At some of these ceremonies, awards will be presented for other competitions such as the Australian Informatics Competition and the Australian Intermediate Mathematics Olympiad.

The AMT is always keen to hear of or receive photos from schools who participate in our competitions. We appreciate the effort that is involved by AMC school managers to run the competition and all our other programs that give students an opportunity to expand their mathematical knowledge.

NEW RANGE OF T-SHIRTS

A new range of t-shirts has been designed and printed in Australia depicting four famous mathematical solutions. They are: Abel's proof that polynomials of order five or higher cannot be solved algebraically; the Fibonacci Sequence; Pythagoras Theorem relating side lengths for right-angled triangles; and the nine-point circle of von Feuerbach. The t-shirts are made of 100% cotton, are black with brightly coloured designs, come in four sizes (S, M, L, XL) and can be ordered online through the AMT bookshop at www.amt.edu.au.

$$x^5 + 2x^4 + 3x^3 + 2x^2 - 3x - 5 = 0$$

exploring the quintic
Niels Henrik Abel (1802 - 1829)

fibonacci
Leonardo Fibonacci of Pisa
c.1170-c.1250

Πυθαγόρας
Pythagoras of Samos (c.570 - c.495 BC)

Karl Wilhelm von Feuerbach (1800 - 1834)

AUSTRALIAN MATHEMATICS TRUST

The Australian Mathematics Trust is a not-for-profit organisation whose mission is to challenge and encourage young Australians in the understanding of mathematics to maximise their intellectual potential.

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Our website contains news and information about the AMC, 'warm-up' papers for students to practise before the AMC, an online bookshop where all our titles can be viewed and purchased, information about the Trust and its other activities as well as links to Facebook and Twitter.

2013 Dates for Open Events

Three week period before 10 June
Mathematics Challenge For Young Australians - Challenge Stage

April to September
Mathematics Challenge For Young Australians - Enrichment Stage

Thursday 9 May
Australian Informatics Competition

Thursday 1 August
Australian Mathematics Competition

Thursday 15 August
Australian Intermediate Mathematics Olympiad

Thursday 5 September
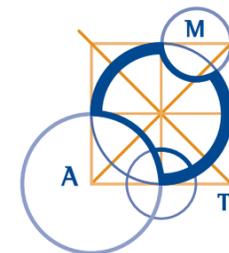Australian Informatics Olympiad

ADMINISTRATIVE MATTERS

In a change to procedure this year, all AMC certificates prize pins and prize vouchers were dispatched to schools in Australia. None of these were retained for presentation at award ceremonies. Where students have been invited to an awards ceremony, a duplicate certificate will be presented to them.

Prize vouchers issued for 2012 competitions include a code that is used to redeem a book from the AMT online bookshop. Instructions can be found at www.amt.edu.au/voucher.html.

MATHS MATTERS

From the Executive Director
Professor Peter Taylor

I will be retiring at the end of this year after more than 18 years as the Executive Director of the Trust. It has been a significant part of my career to coordinate the largest national mathematics enrichment program in the country and I have enjoyed the challenge and all the people I have met and worked with along the way. I had actually started in 1976 as a volunteer, being part of the founding group of the predecessor to the Australian Mathematics Competition and I plan to continue to have involvement in some aspects as a volunteer.

To take over this position Mr Mike Clapper has been appointed. He has a strong background as a mathematician and an educator, having earned a Masters degree in Mathematics at Oxford, and then gone on to be a teacher and in recent years Principal of various schools in Australia. He is highly regarded in the Trust having served some time as a member of the Australian Mathematics Competition Problems Committees and all external references are impressive, so I am very confident about the next phase of the Trust's history.

I'd like to take this opportunity to thank all the schools who have participated in our competitions and programs over the last 18 years and acknowledge the dedication of all the teachers who have run the competitions and programs. Without their committment many students would not have the opportunities that are available in mathematics. I wish you and your students all the best for the future.

Peter Taylor

Professor Peter Taylor

As mentioned in his letter on this page, Professor Peter Taylor will retire from the Australian Mathematics Trust (AMT) at the end of 2012, completing more than 18 years of dedicated and distinguished service as Executive Director.

Professor Taylor has served as a Professor of Mathematics at the University of Canberra since 1996. He was originally employed at the Canberra College of Advanced Education (CCAE) in 1973 as an Assistant Lecturer in Mathematics and became the Executive Director of the AMT in 1994. The University of Canberra is the sole Trustee of the AMT.

In his role of Executive Director of the AMT, Professor Taylor has overseen millions of entries from all over the world to the Australian Mathematics Competition which started in 1978. The Competition is widely recognised as a groundbreaking and significant initiative to encourage students to study mathematics, and under Professor Taylor's leadership, the Trust has introduced new competitions and activities in computing science and statistics.

Professor Taylor was the inaugural Chair of the Australian Mathematical Sciences Institute (AMSI) Education Advisory Committee (2003-2011), where he led the AMSI response to the Australian Curriculum; creation of teacher resource models as well as important collaborations with CSIRO. In this role, he was also instrumental in the development of new school mathematics resources and texts.

Professor Taylor was co-chair of the International Commission on Mathematical Instructions Study 16 *Challenging Mathematics in and beyond the Classroom* which commenced in 2002 and whose outcome was published by Springer in 2009. He was made a Fellow of the Australian College of Educators in 1999 and he received an Honorary Doctorate from the University of Rousse, Bulgaria in 2003. He received the World Federation of National Mathematics Competitions Paul Erdös Award in 1994, the AMT BH Neumann Award in 1993 and the Medal of the Latvian Mathematical Society in 2000. Professor Taylor also received the AMSI Distinguished Service award earlier this year.

Professor Peter Taylor will continue his involvement with the AMT, as a volunteer with the Australian Mathematical Olympiad Committee and Australian Mathematics Foundation (AMF), of which he is a founding member. The AMF Committee has asked Professor Taylor to serve as its Chair from 1 January 2013.

The staff at the Australian Mathematics Trust would like to thank Professor Taylor for his commitment and leadership during his tenure and wish him a long and wonderful retirement. Staff and other colleagues will be farewelling him at a cocktail party in Canberra in November.