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Annual Conference - Bookings Now Open

5 and 6 December, 2002

The conference synopsis book for the 2002 conference will be arriving in a separate mailout by the end of the first week in September. Please contact the MAV if you don't receive your copy. We are again delighted to offer our members an exciting and diverse program, with many renowned presenters.

Remember that sessions fill very quickly, so get your applications in soon. **Applications close Friday 25th October.** The program and registration forms can also be downloaded from the MAV website at:

<http://www.mav.vic.edu.au/pd/confs/index.html>

Annual General Meeting 2002

Saturday 14th September

All members are invited to attend the MAV's Annual General Meeting to be held on Saturday 14th September at 4:00pm, at the Royal Society of Victoria, 8 La Trobe Street, Melbourne.

Please RSVP to the MAV office on 9380 2399 or office@mav.vic.edu.au no later than Tuesday 10th September.

VCE Trial Exams 2002

The 2002 VCE Trial Exams can now be ordered for delivery before the end of Term 3. Each exam features:

- Original questions, highly relevant to the current course
- Fully worked solutions for all sections and clear marking schemes
- Formats similar to those used by the VCAA
- Now available in electronic format with permission to network within the school

Cost: \$45 per exam or \$240 for the complete package; \$300 for the complete Electronic package (all prices include GST, no postage payable). An order form was included with last month's issue, or simply use the publications order form on page 7.

Final Public Lecture

Sat 14 Sep - *The Joy of Gambling*, with Dr Marty Ross, The Royal Society of Victoria, 2:00pm (followed by the MAV AGM at 4:00pm).

Contact the MAV office on 9380 2399 or email office@mav.vic.edu.au **Bookings essential!**

Awards/Scholarships

MAV Research Scholarships

Applications are now being sought for the MAV 2003 Research Scholarships. Two scholarships are available for the research component of a Masters of Doctor of Education degree OR towards a research degree (Masters or PhD), for studies in 2003. Each is worth \$1500.

Professional Experience Award

Applications are also invited for the 2002 MAV/University of Melbourne Professional Experience Award. This award of \$500 is designed to enable the recipient to undertake some activity (eg. research, PD, conference registration) that they would otherwise be unable to undertake.

Applications for both close Friday 4th October 2002. Further details/conditions and application forms are available from the MAV office or on our website:

<http://www.mav.vic.edu.au/pd/index.html>

VCE Revision Lectures

Proudly supported by The Age

There are still places available for the MAV's VCE Maths Revision Lectures for Unit 3 & 4 students at the following locations:

Glen Waverley: Wednesday 25 September

Footscray: Thursday 26 September

Traralgon: Friday 27 September

Frankston: Monday 30 September

Bendigo: Tuesday 1 October

Geelong: Wednesday 2 October

Bookings are essential. For further details and a booking form contact the MAV office on 9380 2399 or visit our website at:

<http://www.mav.vic.edu.au/studact/index.html>



From the President

Letter From China

Professor Liu Jian said, "We have ten million middle school teachers who need to become familiar with China's new Curriculum and Standards Statement in Mathematics". He was addressing the international conference on the Reform of the Mathematics curriculum and its Implementation in the 21st Century, held in Chongqing in south west China. That is some indication of the massive task under way in China to update curriculum and teaching standards in Mathematics.

I was honoured to be one of fifteen international speakers invited to speak to two hundred leaders of mathematics education and teacher training in China. Chongqing is on the Yangtze River. By plane it is two hours North West from Hong Kong. During the second world war, it was China's capital. It is now one of the new economic zones established by the national government.

My paper was about the reform of arithmetic in primary school and the need to establish a stronger bridge to algebra in the later years of school. It was important therefore to put aside some misconceptions of what is meant by making a connection between arithmetic and algebraic thinking. It is not about moving high school algebra into the primary school. Nor is it about introducing young children to a separate study of algebraic forms, such as the use of literal symbols. My aim was to look at the potentially algebraic nature of arithmetic, rather than moving students from arithmetic to algebra.

The paper reflected current attempts in Australia and China, and in many other countries, to reconceptualise the study of arithmetic away from an almost exclusive focus on computation. Of course, computational efficiency must remain one of the goals for the study of arithmetic in the primary and junior secondary years. But it can no longer claim to be the driving objective. For one reason, access to inexpensive calculator technology has reduced the pre-eminence once given to the computational aspect of arithmetic. No-one, I suggested, knows where the balance will shift to, but it has already shifted.

In the paper, I looked at various kinds of generalisable numerical expressions, such as $78 - 49 + 49 = 78$ and discussed how they should be presented to children, not as computational exercises, but instead as opportunities to engage in mathematical thinking about

number properties and relations. Recent research has shown that quite young children, when they are provided with such rich material, can engage in quite insightful algebraic thinking. These experiences provide an important counterbalance to what are called "missing number" sentences such as $8 + \square = 13$, which are essentially about unknown numbers, but in no way introduce children to the idea of a *variable*. The interesting feature of the first sentence is that it isn't tied to the specific numbers 78 and 49. It belongs to a *type* of number sentence that is true whatever number is taken away and added back. Children can see and describe this property using their everyday language of mathematics.

One of the speakers at the Chongqing meeting, Professor Sharygin from Russia, referred to this kind of teaching as "underground algebra". It's there, it's taking place, but you can't see the x's and y's. It's a nice phrase. At last year's conference on algebra, held in Melbourne, Maria Blanton and Jim Kaput from the USA remarked that teachers in the primary school years need to grow "algebra eyes and ears" in order to see and make use of these opportunities offered by the potentially algebraic nature of arithmetic.

Developing these ideas is a challenge for the reform of primary school mathematics curricula. They are needed to provide a stronger bridge to algebra in the later years of school. They can also strengthen children's understanding of basic arithmetic. Any reform of the arithmetic curriculum in the primary school must address these two objectives.

DR MAX STEPHENS

President

Common Denominator Deadlines – 2002

Receipt of copy:	Monday 16 th Sep, 2002
Receipt of inserts:	Monday 30 th Sep, 2002
For mailing on:	Monday 7 th October, 2002

Products and services advertised and opinions expressed are not necessarily those of the Editor or the MAV.

MAV Farewells

Goodbye Pauline!

Our Professional Officer in charge of Student Activities and Publications, Pauline Rogers, is leaving us at the end of September, to have a baby and move to Mildura. After nearly two years, we will miss her enthusiasm, expertise and huge commitment to the Association. Members will be aware of the great work that has been done in the area of Publications, as well as the development of our Student Activities program. We would like to wish her all the very best for her new life up in the country and as a mother. Thank you for everything Pauline! Good luck in the future!

Goodbye for Now

This is my last opportunity to say goodbye for now to members. I will be taking 12 months maternity leave, starting from 14th September. During this time, my position will be taken by Simon Pryor, who has had extensive experience in the non-profit sector over many years. Simon is actually a qualified drama teacher from way back, and has worked in the Department of Education during the 1980s, before, amongst other things, being on Brunswick Council and also being Mayor! I believe that the management of your Association is in very safe hands, and you can expect to see plenty of new initiatives throughout 2003. I wish you all the very best, and look forward to catching up with you on my return.

Sally Turnbull
Executive Officer

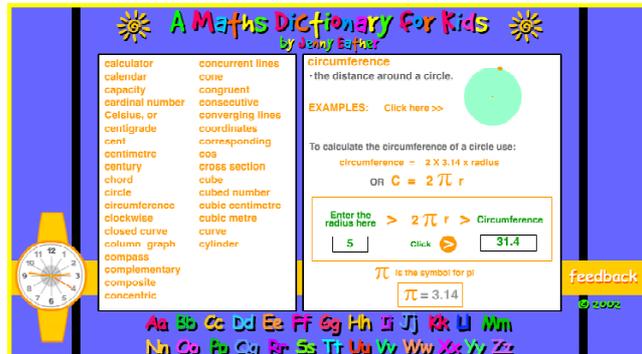
Web Reviews

A Maths Dictionary for Kids

<http://www.amathsdictionaryforkids.com/>

A delightful and well organised web site, designed for students. It includes over 400 common maths terms presented in simple language in an animated way. The site is bright and colourful, as well as being easy to use. Students can reinforce their understanding of terms by completing the interactive activity that accompanies most of the words.

A great student tool in the primary year levels.



From Last Month

Since we brought you the web review in the August Common Denominator for the Math Comics Page, this website has unfortunately been closed down for copyright reasons.

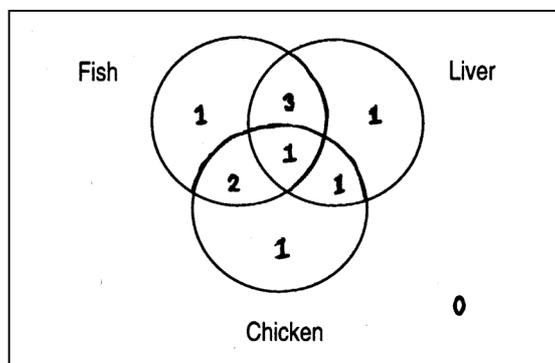
Problem of the Month

This problem is aimed at bright junior students (Year 5-8) and was presented by Tony Gardiner (UK) at a recent workshop held at St Leonard's College on maths problems and use in schools.

Weighing the baby at the clinic was a problem. The baby would not keep still and caused the scales to wobble. So I held the baby and stood on the scales while the nurse read off 78kg. Then the nurse held the baby while I read off 69kg. Finally I held the nurse while the baby read off 137kg. What is the combined weight of all 3 (in kg)?

- A. 142
- B. 147
- C. 206
- D. 215
- E. 284

Last Month's Solution: I have 10 cats



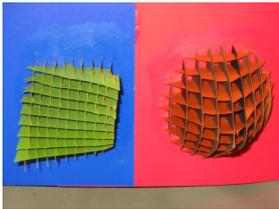
2002 Ford MTQ



MTQ Photos

There are now photos of some of the entries from this year's Ford Maths Talent Quest on the MAV website. Lots of great ideas for you to begin your planning for next year's Quest! Just visit:

<http://www.mav.vic.edu.au/studact/mtq.htm>



Here are a couple to get you started!

Maths Games Day Reports

Methodist Ladies' College - Year 10

On Friday 9 August, 82 teams from around Victoria competed for the Vivienne Willis cup. The highlight for this year was the relay organised by Mr Tim Dorning. I have never seen so many mathematics students have so much fun. One student said 'the atmosphere was unbelievable and it was if the students were playing for sheep stations'.

There was silence in the gym when the problem solving section was tackled. A number of old favourites popped up again such as question 17.



A normal duck has two legs. A lame duck has one leg. A sitting duck has no legs. There are 33 ducks with a total of 32 legs. The total number of normal ducks and lame ducks is twice the number of sitting ducks. What is the number of lame ducks?

Our sponsors this year were Link Education, The School for Excellence, Jacaranda, The Age and the Compass Centre at MLC. Staff were kept entertained by Mr David Leigh-Lancaster, talking about CAS Mathematics in Middle School and Mrs Nilgun Safak presented her online Mathematical Methods course.

The winners, for the third time in a row, were Camberwell Grammar, second St Michael's and third Melbourne High School. A number of other prizes were awarded throughout the day, including The School for Excellence \$100 voucher for the hardest working student which went to Gerard Lynch from Loyola College.

A special thank you must go to Mr Robert Anastasio from St Aloysius Catholic College and Mr Paul Kelly from Marcellin College for helping with the scoring and the smooth running of the day and not to mention the Year 9 MLC student officials under the direction of Ms Allason McNamara! Thanks also to Ms Pauline Rogers

(MAV) and Mrs Janeane Anderson (The MacRobertson Girls' High School).

Claire Pitchford and Jing Jing
MLC Year 9 Student Officials



MLC student officials who helped run the Year 10 Games Day

Sixth Year 8 Games Day at Penleigh & Essendon Grammar School

Five hundred and seventy-six year eight students staring at each other across trestle tables, 288 paper chess boards, 1440 coloured discs, almost silence, intense atmosphere – it must be the Year eight games day at Penleigh and Essendon Grammar School. The silence changes to a dull buzz as 144 teams gang together to solve as many mathematical problems as they can.

On Wednesday, 24th July almost 80 schools sent teams along to compete in problem solving, puzzling, and of course in maths games. The day was broken up by lunch and brackets of music from the P.E.G.S. dance band. Ultimately winners were determined and prizes awarded (thank you to the sponsors; Texas Instruments, Jacaranda, Link Educational Supplies).

- 1st. The University High School
- 2nd. Wesley College
- 3rd. Wantirna Secondary College

Since the first P.E.G.S./M.A.V. games day held in 1997 attracted about 200 students the day has grown steadily due to the support of the many schools who return annually. Of course the day could not proceed without the generous support of the school, which happily makes available the venue and furnishings but also releases staff and students to administer the event.

Roger Blackman
P.E.G.S.

Professional Development 2002

Technology Tour with Texas Instruments (registration form on page 8).

COST: Members: \$30 1 session, \$50 2 sessions, per person (inc. GST).
Non-members \$40 1 session, \$70 2 sessions, per person (inc. GST).



Date	Title	Year	Location	Time
Mon 9 Sep	Geelong Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Introductory Workshop for the TI-89/92+/Voyage 200	10-12	Geelong	4:30-6:15pm 7:00-8:30pm
Tue 10 Sep	Warrnambool Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Dynamic Geometry on the TI-92+	10-12	Warrnambool	4:30-6:15pm 7:00-8:30pm
Wed 11 Sep	Hamilton Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Advanced Workshop for the TI-83+	10-12	Hamilton	4:30-6:15pm 7:00-8:30pm
Thur 12 Sep	Ballarat Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Advanced Workshop for the TI-83+	10-12	Ballarat	4:30-6:15pm 7:00-8:30pm
Mon 16 Sep	Drouin Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Advanced Workshop for the TI-83+	10-12	Drouin	4:30-6:15pm 7:00-8:30pm
Tue 17 Sep	Leongatha Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Advanced Workshop for the TI-83+	10-12	Leongatha	4:30-6:15pm 7:00-8:30pm
Wed 18 Sep	Maffra Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Introductory Workshop for the TI-89/92+/Voyage 200	10-12	Maffra	4:30-6:15pm 7:00-8:30pm
Thur 19 Sep	Bairnsdale Technology Tour with TI 1. Intermediate Workshop for the TI-82/83/83+ 2. Introductory Workshop for the TI-89/92+/Voyage 200	10-12	Bairnsdale	4:30-6:15pm 7:00-8:30pm

The following topics will be presented by Texas Instruments' Peter Fox. Topics vary from venue to venue (see table).

Introductory Workshop for the TI-89/92+/Voyage200

This workshop will focus on the introduction of computer algebra systems (CAS). It assumes that teachers have used a graphing calculator such as the TI-82/83/83+ range. It does NOT assume any knowledge of the TI-89/92+/Voyage200. Teachers do not need to be taking CAS methods to benefit from this workshop. It is relevant to all VCE mathematics teachers. The workshop will focus on using a CAS to perform the following operations: substitute a value into a variable, solve an expression for a given variable, solve an equation for a given value, define a function, factorise a function, graph a function, the y = editor, and basic Calculus.

Intermediate Workshop for the TI-82/83/83+

This workshop is suitable for teachers that have been using the TI-82/83/83+ for a number of years and wish to extend their knowledge of the graphical calculator. It is assumed that teachers in this workshop have used the calculator to draw basic graphs and have used some of the menu items available on the calculator. Many of the calculator operations dealt with in this workshop are appropriate mainly to VCE mathematics teachers. Topics will include: Graphing techniques, using the CBR™ with the calculator, using calculator programs, and using the probability distributions on the TI-83(+).

Advanced Session for the TI-83+

This workshop is designed for experienced users of the graphical calculator. Some of the session details require an TI-83(+) calculator to be used. (These can be supplied upon request.) A personal computer or notebook computer would be of some benefit for this session. (Note: An IBM R30 Notebook computer will not work in this session.) Topics will include: Using TI-Connect software to link a graphical calculator to a P.C., transferring data P.C. ↔ Calculator, writing basic programs for the TI-82/83/83+, and working with applications (APPS) such as Start-up*, Logic Ladder*, Probability Simulation*, Inequality, and Transformations. (*Free)

Dynamic Geometry on the TI-92+

The TI-92+ can be used to run either Cabri Geometry or Geometer's Sketchpad. Although a computer will give a more user-friendly environment to work with, the calculator adds genuine portability and access to Dynamic Geometry. Topics will include: Introduction to & examples of, drawing a triangle in Cabri, drawing parabolas, and finding the circumcentre of a triangle.

MAV Publications Order Form

TAX INVOICE

To order any of the publications advertised in this newsletter, fill out the details below and return this form with your payment to the MAV at 61 Blyth Street, Brunswick, Vic, 3056 or by fax on (03) 9389 0399.

Contact Name: _____

School: _____

Address: _____ Post Code: _____

Telephone Number: (____) _____ Fax Number:(____) _____

Please supply:

Qty	Title	Total
Postage and Handling inc. GST For orders: less than \$40 - \$5.00, from \$41 to \$100 - \$7.00, over \$100 - \$10.00. For overseas orders, contact the MAV office for rates.		
TOTAL PAYABLE INC. GST		

Method of Payment

Please note: orders will not be processed until we have received full payment or you have quoted your school's purchase order number below.

1. Cheque: I enclose my cheque/ money order for \$_____ (made payable to the MAV)

2. Credit: Bankcard Mastercard VISA

Card Number:

Signature: _____ Expiry date: _____

Cardholder's name: _____

• Purchase Order Number: _____

The Mathematical Association of Victoria - ABN 34 004 892 755
 61 Blyth Street
 BRUNSWICK VIC 3056

Technology Tour with Texas Instruments

TAX INVOICE ABN: 34 004 892 755 All Prices Include GST

When payment is made this form will become a tax invoice for accounting purposes.

To register for one of the technology tours, fill out the details below and return this form, or a copy, **with your payment** to the MAV. **Feel free to make a phone booking on 03-9380 2399 to register a place.**

Please photocopy this application form as required.

Name: _____

School: _____

Address: _____

Phone: _____ Fax: _____ Email: _____

MAV Membership: Institutional: Individual: Non Member:

Cost:

Members: 1 session \$30, 2 sessions \$50, per person (inc. GST)

Non-Members: 1 session \$40, 2 sessions \$70, per person (inc. GST)

Location	Date	Session/s	Cost (inc. GST)
		1.	
		2.	
TOTAL COST INC. GST			

Please indicate which calculator you have - _____
Or which one you would like TI to supply - _____

Method of payment:

I enclose my cheque/money order for \$ _____ (made payable to MAV) or charge my

Bankcard Mastercard VISA

No.

Expiry date: ____ / ____ Cardholder's Name: _____ Signature: _____

OR

School purchase order number: _____

Please return this form to:

The Mathematical Association of Victoria (ABN 34 004 892 755)

Cliveden, 61 Blyth Street, BRUNSWICK VIC 3056, Tel. 9380 2399, Fax. 9389 0399

ACKNOWLEDGEMENT LETTERS

Letters of acknowledgement are only sent out to attendees for full day professional development sessions. Those people attending after school professional development sessions will only be notified if a place is not available.

CANCELLATION:

If you are unable to attend a session that you have booked into, refunds will not be issued if you cancel your booking less than 48 hours prior to the session. Bookings are transferrable to another person.



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