

## IMPORTANT DATES

### Press Conference

The FMN Press Conference will take place on Thursday 7th September

### Training for Centre Managers

- Thursday 14th and Friday 15th September: wave 3, course 2
- Friday 15th and Saturday 16th September: all CMs, course 4
- Friday 13th and Saturday 14th October: initial manager training
- Friday 3rd November: wave 3, training course 3

### Dates for termly returns

- Autumn Term: Friday January 12<sup>th</sup> 2007
- Spring Term : Friday 20<sup>th</sup> April 2007
- Summer Term: Friday 20<sup>th</sup> July 2007

## GREAT NEWS

- Numbers for both AS and A-level Further Maths have risen by over 20% this year.
- During the Autumn term the remaining FM Centres will start, so the network will be complete before the start of 2007
- Regional meetings are now established across the network.

## INSIDE THIS ISSUE:

- Online resources support for all specifications 2
- CPD update 2
- An exciting Summer Term 3
- Richard Browne introduces himself 3
- News and events from the FM Centres 4
- MEI Conference 6
- Puzzle Solutions 7
- Contact details 8
- Recreational Maths 8

## Fantastic news from this year's AS/A-level results

Further Mathematics entries have increased dramatically this year.

AS-level Further Mathematics numbers are up by 24.5% and A-level by 22.5%. Over the past two years AS Further Mathematics numbers are up by over 58%. These amounts are astonishing. The increases are more than double those achieved by any other AS/A-level subject. This year 7290 students took A-level Further Mathematics, up from 5933 in 2005, and 6292 took AS-level, up from 5054.

The figures are an incredible return for the hard work of everyone involved in the Further Mathematics Network. It's not just the direct tutoring that we do that is bringing about these increases. At least as important is the fantastic work we are doing to:

- Raise the profile of Further Mathematics throughout the country, so that more schools and colleges are starting to offer it themselves and more universities and employers are recognising its value.
- Promote Mathematics and Further Mathematics to pupils at Key Stage 4 through enrichment events. (A-level Mathematics entries also rose by 5.8% this summer).
- Provide free access to resources and advice.
- This newsletter contains evidence of much of this work, taking place all over the country.

I believe that the collaborative nature of the Network has been crucial to its success so far. Schools, colleges, Local Authorities and universities are all working together constructively to improve opportunities for students.

We are working to support the specifications of all three major examination awarding bodies. We are already liaising with the National Centre for Excellence in Teaching Mathematics, NRICH and the Royal Institution and we are keen to work with any organisations relevant to improving mathematical opportunities for school and college students.

Over the coming year I hope that Further Mathematics Centres will work to develop worthwhile links with industry, so that we can help students to see directly just how valuable studying AS/A-level Mathematics and Further Mathematics is to their future employment and prosperity.

This term the Further Mathematics Network will be completed, well ahead of schedule. We have enjoyed a fantastic start. Over the coming academic year we will consolidate and expand our achievements, so that we will see another significant increase in Further Mathematics numbers in 2007.

*Charlie Stripp, Programme Leader*

## Regional meetings

In November 2005 the South West Centres had their first regional meeting. This has enabled the Centre Managers to share their successes and concerns, liaise about serving schools on their boundaries and put on joint events.

Following the success of the South West Regional meetings, the third of which took place at Oak House on 27th June, regional groups have now been established all over England.

The Eastern region had their second meeting on 13th June and the North West region had their inaugural meeting on 16th June. London, the South East, the Midlands and the North East will all have their first meetings during next term.

Notes from the discussions and dates of the next meetings can be found in the managers' area of the FM Network website <http://www.fmnetwork.org.uk>

*Sue de Pomerai, Assistant Programme Leader*

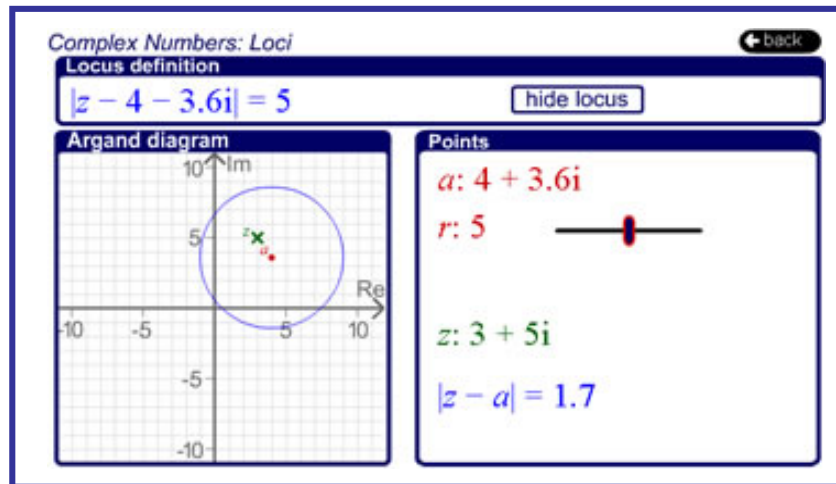
## Further Mathematics Network website update

The Further Maths Network supports the teaching and learning of Further Maths across all four major specifications and provides online resources to do this.

We have fully resourced FP1 for AQA, Edexcel, MEI and OCR 'A' and will complete FP2, M1 and D1 for all specifications during this academic year. This will mean that a student will be able to use the resources to work towards an AS in Further Mathematics on any specification.

We hope to extend this to a full A-Level in Further Mathematics across all specifications in the near future.

Online  
resources to  
support  
Further  
Mathematics  
across all  
specifications



We are working with AQA, Edexcel and OCR to produce online resources for their specifications. All three awarding bodies fully endorse our work in supporting and promoting Further Mathematics.

*Tom Button, On-line Learning & IT Coordinator*

## CPD Update

Many FM Centres are aiming to develop a CPD provision in their second year. If you are keen to run training events in your Centre, the Central Team can offer support, perhaps by providing some resources for the days, or through members of the Central Team being involved in delivering the training.

Please let us know what help you would like and we will do our best to provide it.

MEI is developing a range of generic CPD courses covering the applied strands of the AS/A-level. The courses involve 2 training days, one at the start of the course and a second 2 or 3 months later. Teachers attending these courses will be given a textbook and one year's access to the MEI online resources for the strand covered by the course, along with additional resources written specifically for these courses. Email support from a tutor will be available between the two days to teachers attending these courses. Dates and venues for MEI's planned programme of courses will be available in September.

In addition to MEI's planned programme, if any FM Centres, or groups of FM Centres, are interested in hosting any of these courses, we will do our utmost to make this possible. Bernard Murphy, who coordinates the CPD provision for MEI, will be coming to training course 4 in September to discuss this in more detail.

We have started a thread about CPD on the FM Centre Managers' forum. If you have views on the above, or on how the FM Network can contribute to CPD generally, please contribute to the forum discussion.

*Sue de Pomerai, Assistant Programme Leader*

CPD and your  
Further  
Mathematics  
Centre

**An exciting  
Summer term  
for the Further  
Mathematics  
Network.**

The amount of activity within the Network this term has been phenomenal. The programme of Revision Days put on by the Further Mathematics Network was much more extensive than ever before and seemed to be as well received as ever. However, in addition to this, for me there have been two particularly pleasing developments.

The first is the level of engagement with students who are not necessarily taking Further Mathematics. Core 1 and Core 2 Revision Days have been very well attended. Similarly, there have been a very pleasing number of excellent enrichment events put on by the Network. These have been aimed at both sixth formers and students in years 10 and 11. I believe that this type of activity has really cemented the reputation of the Further Mathematics Network as an organization that is supporting ALL mathematics in schools and colleges and that it has helped many students by making them aware of the opportunities to study Further Mathematics.

The second pleasing development is the extent to which the Further Mathematics Network is working with existing structures to achieve its goals. Further Mathematics Centres have excellent and substantial contacts with many local schools and so are able to promote any relevant events and opportunities very well. An example of this is the recent "Maths and Beyond Day" at Warwick University. The timescale for promotion of the event was very tight but the Coventry and Warwickshire Further Mathematics Centre was quickly able to use its existing contacts and contacts within the wider Further Mathematics Network to generate an audience of around 260 sixth formers in just over two weeks. Another example is the relationship that has been built between the Further Mathematics Network and NRICH. Next year, all students studying Further Mathematics through the Network will receive a username and password, enabling them to use the ASK NRICH forum, part of the superb NRICH website. Further Mathematics Network students will be able to contact one another and the many other mathematics students who use NRICH via the forum. There are many other examples of the Further Mathematics Network working alongside existing structures and more work is being done in this area all the time.

Finally, the Guide for Centre Managers has been updated over the summer. You'll now find information regarding the collection of exam results, collection of feedback following student withdrawal, OFSTED inspections, performance reviews and succession planning amongst other things. In the pdf version of the guide you can click on the contents page to be taken directly to the part of the document you are interested in.

I'm writing this on examination results day.

The superb news regarding A-level Mathematics and Further Mathematics is thanks in no small part to all of our efforts, we should be delighted with the progress we've made to date and look forward to another successful year next year.

*Richard Lissaman, Deputy Programme Leader*

**Richard Browne,  
the newest  
member of the  
FM Network  
team, introduces  
himself**

I joined MEI on 29 August. My job has two strands. I will spend half my time as a member of the FM Network team. This part of my job will include supporting about 12 centres, mainly in the South/South East. I will also contribute to the team's work considering new developments, particularly those relating to links with industry, as the full network is rolled out.

In the remainder of my time, I will work on a new role in MEI, developing ideas about how mathematics education can support the needs of industry. In this part of the job, I will liaise with industrialists, researchers, government and other central bodies; I will be trying to find significant ways in which MEI could use its expertise to benefit both learners and users of mathematics qualifications. One aspect of this strand of my job involves finding ways for MEI to influence and strengthen the place of mathematics in vocational qualifications.

Before joining MEI, I worked for 17 years at QCA and its predecessor bodies. My work in the QCA mathematics team involved drafting the National curriculum, supporting the development of national tests, and accrediting and regulating GCSE and GCE qualifications. Since 2004 I have led QCA's Post-14 Mathematics project. Prior to 1989, I was Head of Mathematics in a comprehensive school in Inner London.

*Richard Browne, Professional Officer (Industry)*

# News and events from the FM Centres

## WILTSHIRE FMC

The Wiltshire Further Maths Centre has been busy again. In July they hosted a two day enrichment event for Year 12 pupils at Bath University. 200 pupils from 17 schools across Wiltshire attended, including 19 from the Wiltshire fundholders, Hardenhuish School. The numbers were such that all presentations had to be given twice, each to a group of 100 students.

Interactive sessions were to be given by lecturers from the Universities of Bath, Warwick and Plymouth, as well as Bob Francis and Tim Honeywill, FMC managers for Devon and Coventry and Warwick respectively and Richard Lissaman. Sessions included using mathematical models to predict and minimise the spread of disease, Fibonacci and Golden Proportion and Chaos Theory. Students had a short talk on maths at university, as well the chance to win prizes with a multiple choice quiz. All of the topics covered were designed to enrich and extend topics studied during Year 12.

In addition, a training course for maths teachers who have not taught A-level Maths before was run alongside the enrichment event. This was run by Sue de Pomerai and introduced teachers to some of the content and ideas from both the Core, Mechanics and Decision Maths. Richard Lissaman delivered a session on probability in Statistics. Thirty teachers from across Wiltshire attended this course.

Andrea Perks, Wiltshire FMC Manager



Wiltshire teachers hard at work

## Congratulations

Andrea Perks, joint Centre Manager for the Wiltshire FMC, gave birth to a baby girl called Vivien on Saturday 23rd July. With her usual amazing organisational skills, Andrea made it through to the end of term but sadly didn't manage much of summer holiday.

Our congratulations (and a commendation certificate) go to Andrea and her family on the birth of the first FMN baby.

While Andrea is on maternity leave next term, the other half of the Wiltshire partnership, Benn Griffin, will be running the Wiltshire FM Centre.

## COVENTRY AND WARWICKSHIRE FMC



The Coventry and Warwickshire FMC teamed up with the Maths Department at the University of Warwick on 7th July for the **Mathematics and Beyond Day**. In the morning there were talks from two renowned speakers, Professors Caroline Series and Ian Stewart, and in the afternoon we laid on a Maths Quiz, showed some DVDs giving a 'virtual tour' of the Warwick campus and a humorous outtake on life as a Maths undergraduate and had a talk on preparing for university and filling out your UCAS form. Lunch was provided in the middle of the day. In the afternoon members of staff and keen students could opt to attend challenging talks laid on in parallel by the department (one on Fermat's Last Theorem, one on Mathematical Biology).



We had about 260 students and staff attend this event. About half came from our region with the other half coming from the surrounding area. Sadly we had to turn away about 70 students because we reached full capacity with a week to go (which is amazing since this event was only finalised 3 weeks beforehand) so we are very keen to lay on a similar event in future as it is clear there is the demand.



Socialising at lunch time



We have received lots of positive feedback, although there have been some useful tips for improving in the future.

I think personally that the variety worked well – talks all day long would have been tough on a lot of students.



Students at work

If you want to know more about the organisation of the event or how different aspects of the day were received then please e-mail me and I'll be very happy to answer questions and share my experiences.

Tim Honeywill,  
Coventry and Warwickshire FMC Manager

Enjoying the sun outside the Mathematics Institute



## THE STAFFORDSHIRE AND SHROPSHIRE AND THE KEELE AND POTTERIES FMCs



An attentive audience



Concentration



In June, the Staffordshire and Shropshire Centre and the Keele and Potteries Centre jointly organised and ran maths masterclasses at Staffordshire University and Keele University. The masterclasses proved much more popular across the region than was expected. In total, 190 students from 42 schools attended the classes.

The aim of the masterclasses was to introduce able young mathematicians to areas of maths that are beyond those studied in school. Each day consisted of two sessions, one on "Numbers and Puzzles" delivered by David Bedford from the Keele Centre and one on "Game Theory" delivered by Phil Chaffe from the Staffs & Shrops Centre.

The students thoroughly enjoyed themselves with activities ranging from a three way gunfight complete with Ennio Morricone soundtrack to playing "Chomp", a game in which the loser gets the poisoned piece of chocolate.

Feedback from both days was very positive and more events are planned for next year.

*Phil Chaffe, Staffordshire and Shropshire FMC Manager*



Plenty of discussion

## THE BLACK COUNTRY FMC

The Black Country Further Mathematics Centre has run two promotional events for Mathematics with year 10 and 11 students.

The first, held in conjunction with the School of Computing and Information Technology (SCIT), University of Wolverhampton, was the Further Mathematics Conference which consisted of short presentations about the challenge of Further Mathematics AS/A-level, and applying for University. Guest speakers included Richard Lissaman and Ian Slater, Mathematics Mentor Walton High School, Stafford. Students were involved in workshops covering the Monty Hall problem, traversable networks and complex numbers and chaos, which were designed to give a taste of the Further Mathematics syllabus. Workshop leaders were Ruth Fairclough (University of Wolverhampton) and Richard Lissaman, both experienced Further Mathematics teachers. Feedback indicated that students enjoyed the challenge and found the mathematics covered interesting. They also enjoyed the visit to a "real uni", particularly the SCIT goody bags prepared by Michelle Palmer. SCIT mathematics students also played an active part in the workshops giving them valuable classroom experience to take forward to their PGCE course.

The second event was the first in a series of three National Academy for Gifted and Talented Youth (NAGTY) Outreach day workshops held at the City Learning Centre (CLC), Sandwell. The event was run jointly with SCIT and the Black County Schools Improvement Partnership. Students from as far afield as Surrey, Gloucester, Kenilworth and Coventry as well as local students from the West Midlands gathered for a fun day of Decision Mathematics. The workshop was lead by Liz Price (BCFMC Manager and Senior Lecturer with the University of Wolverhampton) ably assisted by a team of four undergraduate/graduates who had given up their Saturday to help. The workshop was designed to be a taster of Decision Mathematics. The morning sessions covered minimal spanning trees and shortest routes. Students were given lots of hands on activities and derived the standard algorithms by inspection. After lunch (spent watching part of a Star Wars film in the superbly equipped CLC film studio) students returned to work on the traversibility and route inspection problems. The day ended with a discussion of the relevance of the mathematics covered to problems in the real world.

Overall students found the day interesting and the mathematics challenging and enjoyed the experience. The CLC made us very welcome providing a good learning environment and lots of refreshments available throughout the day.

*Liz Price, The Black Country FMC Manager*



The NAGTY workshop team

## HAMPSHIRE AND ISLE OF WIGHT FMC

**News from the Isle of Wight:** in February the 20 students on the Isle of Wight who are receiving tuition through the Further Maths Centre, met at Carisbrooke High School for an informal event, the main aim being for them all to talk to each other, exchange contact details, form self-help groups etc in an attempt to reduce the isolation some of them feel over studying Further Maths. After doing some work on Complex numbers and chatting whilst consuming coffee and biscuits, they all departed happily, saying it had been a very worthwhile experience.

The same group of students, accompanied by their teachers, Catherine Linsell and Robin Holdsworth, travelled to Southampton in early May to attend the Centre's first Revision Day at Southampton University. The teachers, together with Sue de Pomerai and Jill Traill presented the revision sessions. They were joined for part of the day by students and staff from other local institutions. At lunchtime undergraduate students gave the FM students a tour of the University.

During the year contact was made with the Stress Department of GKN in East Cowes, where parts of the Airbus are made, and this resulted in two small groups of gifted Year 10 students going to visit this department around Easter. Although primarily an engineering department, a huge amount of Maths is used in everything they do; the students' eyes were opened to possible careers and university degree paths and they found the visits very valuable. It is hoped to keep this contact an ongoing interest for future years.

*Jill Traill, FMC Manager, Isle of Wight Region*

## NORFOLK FMC

An FP1 revision day took place at the UEA on May 2nd attended by 66 students from 13 Norfolk Schools in addition to 8 students from Suffolk. All specifications were catered for although EDEXCEL caused some organisational difficulties. Students departed exhausted after a day's intensive work and concentration but happy in the knowledge that weak topics had been highlighted for further revision before D-day!

On July 4th a "Mathematics at University" day took place, again hosted by the UEA. This was a collaborative effort between the Schools of Mathematics and Education at the University and the Further Mathematics Centre with the objective of giving an insight for mainly year 12 students into what it is like to study Mathematics and related subjects post 18. The day began with a formal lecture by Dr Mark Cooker entitled "Where's the Geometry in a Geometric Series?" This was followed by a problem solving session and the last session of the day was a panel discussion. Three recently qualified undergraduates gave a brief biography of their experiences of studying Mathematics at University and this was followed by a question and answer session. Students had come prepared with some well thought out questions for the panel.

In collaboration with the LA, Norfolk FMC has commissioned a promotional DVD to encourage an increased uptake of students into Mathematics Courses post 16. (It helps when the producer gained a degree in Mathematics and Philosophy from Manchester University!). The 15 minute DVD will show clips of students in interactive lessons, attending revision/enrichment days, together with students describing their experiences of moving from GCSE to AS level Mathematics and Further Mathematics. It is also hoped to include some footage of past AS/A2/degree level students who have found exciting careers locally due to their Mathematical background: Offshore Engineering (oil exploration and wind farms) and Lotus Engineering are two which spring readily to mind. We intended to send a copy of the DVD to all 11-16 and 11-18 Norfolk Schools to be shown to students prior to their 6th form information evenings, which start in earnest in October.

*Robin Huggins, Norfolk FMC Manager*

## SOMERSET FMC

### Centres collaborate over Revision Days at the University of the West of England

Four Revision Days were held by the West of England and Somerset FM Centres at the University of the West of England in Bristol during late May and early June. The four days, covering C2, C3, FP1 and D1 modules, were attended by over 100 year 12 and year 13 students from schools and colleges in Bristol, Somerset, and South Gloucestershire. The students were pleased to be able to experience the teaching environment of the University, and to look around the campus during the lunch break.

Robert Kelland (W of E Centre Manager) and Dick Russell (Somerset Centre Manager) were helped in the C2, C3, and FP1 Days by Alison Hooper and Tim Swift from the University's staff, and on the D1 Day by Sue de Pomerai.

### Summer Enrichment Day for Year 12 Mathematicians

The Somerset Further Maths Centre held an Enrichment Day for year 12 mathematicians at Strode College in Street, Somerset at the end of June. The event was attended by almost 50 sixth-formers from schools and colleges in Somerset. During the day there were presentations from Richard Walters (The Kings of Wessex School, Cheddar), Andrew Bradley (Yeovil College), and Dick Russell (Somerset FM Centre). Each presentation introduced an area of mathematics which extended the work done in year 12, and was the precursor to some investigative work in 'workshops'. Richard's opening presentation led to investigation of the series expansions of binomial expressions, which was followed up by Andrew's investigation of the calculus and series expansions of  $\sin(x)$  and  $\exp(x)$ . Dick's post-lunch presentation then expanded on these ideas using complex numbers as a way into geometrical ideas of spiral similarity and links between  $\exp(z)$  and the trig functions.

The day took place on a brilliant sunny summer's day and provided an opportunity for students from different schools and colleges to work together, and gave a relaxed introduction to some advanced topics for next year's study. The delegates also enjoyed a splendid lunch which gave a further opportunity to meet, and we are grateful to Strode College for their hospitality.

*Dick Russell, Somerset FMC Manager*



Students enjoy the day at Strode College

## MEI CONFERENCE

The final training day of the academic year took place at the MEI Conference. The day was a success and several Centre Managers took the opportunity to stay for the whole Conference and were able to attend a range of workshops and seminars as well as the very entertaining guest lectures (and the excruciating bar quiz).

Conference handouts are now available from the MEI website at <http://www.mei.org.uk/News/conference06.shtml>

**Caption competition:** Richard took these photos at the conference. Send your captions to Sue and we'll print the best.

Yvonne and Tom in earnest conversation, but what's Stephen looking at?



Charlie teaching Sue the finer points of Mechanics, but what's he saying?



## Puzzle solutions

- Is  $3^{4444} + 4^{3333}$  divisible by 5? (the easier one)

**Solution submitted by Peter Bossom, Monkton Coombe School**

$3^n$  has period 4 therefore  $3^{4444}$  ends ...1

$4^n$  has period 2 therefore  $4^{3333}$  ends ...4

Therefore their sum finishes ...5 and so is divisible by 5

- Is  $4^{2006} + 5^{2006} + 6^{2006}$  divisible by 7? (more challenging)

**Solution submitted by Tim Honeywill, Coventry and Warwickshire FMCM**

$$\begin{aligned}
 4^{2006} &= 16 \times 4^{2004} = 16 \times (64)^{668} \\
 &= 2 \times 1^{668} \pmod{7} \\
 &= 2 \pmod{7} \\
 5^{2006} &= (25)^{1003} = 4^{1003} \pmod{7} \\
 &= 4 \times 4^{1002} \pmod{7} \\
 &= 4 \times (64)^{334} \pmod{7} \\
 &= 4 \times 1^{334} \pmod{7} \\
 &= 4 \pmod{7} \\
 6^{2006} &= (-1)^{2006} \pmod{7} \\
 &= 1 \pmod{7} \\
 \text{so } 4^{2006} + 5^{2006} + 6^{2006} &= 2 + 4 + 1 = 7 \pmod{7} \\
 \text{so } 4^{2006} + 5^{2006} + 6^{2006} &\text{ is divisible by 7.}
 \end{aligned}$$

This method can also be used for the first part of this puzzle

*Thanks and well done to Peter and Tim.*

## Musical Mathematics

Among his many skills Tim Honeywill, Coventry and Warwickshire FMCM, is a part-time DJ. He submitted this article - perhaps if we all respond he'll produce the FM Mix

Following all the wonderful merchandise that has been produced for the Further Mathematics network, it seems that the one thing that was missing is a CD! If there was a Further Mathematics Network CD, what would we put on it? I've thought of a few ideas - I even got listeners to my radio show to give some suggestions:

### Song Titles

- Various recordings of "What A Wonderful World" which contains the immortal lines 'But I Do Know That One And One Is Two, And If this One Could Be With You, What A Wonderful World This Would Be' as well as various Maths references - slide rule, algebra, trigonometry.....
- Pet Shop Boys - "It's A SIN" (not cos)
- Go! Team - "Feel Good By Numbers"
- Manfred Mann - 5-4-3-2-1 (playing for the first time with Arithmetic Progressions)
- Tom Robinson - 2-4-6-8 Motorway (Tom joins in with just a marginally more challenging common difference)
- Jethro Tull - One White Duck/0^10 = Nothing At All (the '/' is not a divide, it's just giving the alternate title of the song - dividing a duck by zero is a concept even we teachers of Further Mathematics have not tackled directly)
- Gene Pitney - 24 Hours From Tulsa. (though of course the title originally intended by Pitney, a well-known lover of Maths problems - deemed too long by his record company - was 'Suppose, travelling at a steady speed of 60km/hr, I am 24 hours from Tulsa. I am famished and have to stop after 10 hours for a two hour recharge. When I restart my journey and supposing I do not have another break, at what steady speed must I travel if I am to still make it to Tulsa within the 24 hours?')

### Album

- Badly Drawn Boy - One Plus One Is One (Badly CALCULATED Boy, more like)

### Group Names

- The Magic Numbers
- Sum 41

Can you come up with any more? E-mail your suggestions to [timhoneywill@fmnetwork.org.uk](mailto:timhoneywill@fmnetwork.org.uk)

## Recreational Mathematics

### Try the new craze for Mathematicians: Binary Sudoku

(solution at the bottom of the page)

1	

- What's the next symbol in the sequence?

M ♡ 8 M...

- Why do Mathematicians get confused between Halloween and Christmas?

*Submitted by Rowan de Pomerai, Student of Electronic Engineering, University of York*

- The sum of the reciprocals of two real numbers is -1, and the sum of their cubes is 4. What are the numbers?

### Contact details

MEI Office  
Oak House

9 Epsom Centre  
White Horse Business Park  
Trowbridge BA14 0XG

Phone: 01225 774777  
FAX: 01225 775755

Programme Leader

Charlie Stripp

E-mail: [charlietripp@fmnetwork.org.uk](mailto:charlietripp@fmnetwork.org.uk)

Assistant Programme Leader

Sue de Pomerai

E-mail: [suedepomerai@fmnetwork.org.uk](mailto:suedepomerai@fmnetwork.org.uk)

National Administrator

Janice Richards

E-mail: [janicerichards@fmnetwork.org.uk](mailto:janicerichards@fmnetwork.org.uk)

Professional Officer (Industry)

Richard Browne

E-mail: [richardbrowne@fmnetwork.org.uk](mailto:richardbrowne@fmnetwork.org.uk)

Deputy Programme Leader

Richard Lissaman

E-mail: [richardlissaman@fmnetwork.org.uk](mailto:richardlissaman@fmnetwork.org.uk)

On-line Learning and I.T. Coordinator

Tom Button

E-mail: [tombutton@fmnetwork.org.uk](mailto:tombutton@fmnetwork.org.uk)

Finance Manager

Dave Griffiths

E-mail: [davegriffiths@fmnetwork.org.uk](mailto:davegriffiths@fmnetwork.org.uk)

Professional Officer

Stephen Lee

E-mail: [stephenlee@fmnetwork.org.uk](mailto:stephenlee@fmnetwork.org.uk)

for the latest from the Network don't forget to visit the website every week

[www.fmnetwork.org.uk](http://www.fmnetwork.org.uk)

## Recreational Mathematics

### Solution to the Sudoku:

0	1
1	0

*And remember, there are 10 possible boards, each more exciting than the last (of course, that's 10 base 2).*

Let Maths take you Further...

The Further Mathematics Network is managed by



and funded by

department for  
education and skills