

Editorial

Essential information about this year's meetings which was not available when the Programme went to press is contained herein. Please make a careful note of the details of all the meetings announced on this page. Please also continue to help your committee by informing us of any potential alternative venues for our meetings. We are very conscious that financial constraints currently seem to be tying us to just one venue – not an ideal situation for the **Yorkshire Branch**.

W P Milne 6th Form Lecture

Wednesday 20th March 2013 at 2.30 pm
at the University of Leeds

Richard Elwes

University of Leeds

'The Maths that Makes the Modern World'

From searching the internet to managing a manufacturing company, everyone knows that maths plays a central role in today's hi-tech civilisation. But what sort of maths? We'll meet a few familiar ideas from algebra and geometry which seem simple and elegant on first sight. But when massively scaled up and implemented on powerful computers, we'll see how these techniques have truly changed the world.

For details of the venue and free tickets please email
a.slomson@leeds.ac.uk

BRIEF NOTICES

SUBSCRIPTIONS:

Subscriptions for 2013 are now due. You may send your cheque for £5, plus £5 for any back payment, payable to the YBMA, to the Treasurer, Tim Devereux, Woodview House, 37 Hough Top, Leeds, LS13 4QW, or you may pay at a meeting.

YBMA CONTACT DETAILS:

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Treasurer: Tim Devereux tim@devrx.org

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FORTHCOMING MEETINGS

Wednesday 6th February 2013
at 7.00 for 7.30 pm

in MALL 1, School of Maths, University of Leeds

'The Future of GCSE Mathematics Examinations'

Trevor Senior

Chief Examiner for Mathematics

Saturday 9th March 2013
at 1.30 for 2.00 pm

Annual Study Session
in Room 8.94, E C Stoner Building, University of Leeds

'Curiosity, Feedback & the Effective Use of Technology'

Ryan O'Grady

AST Mathematician, Calderdale LEA

Most technology advertised for classroom use is a gimmick (QR codes, voting pads, etc.). Effective classroom technology must meet one or more of these criteria: it does something you otherwise couldn't do; it's free; it makes your life easier. Geogebra fits all of the above.

Followed at 4.00 pm by the AGM

Summer Meeting - Saturday 15th June
at 2.00 for 2.30 pm

in MALL 1, School of Maths, University of Leeds

'Art and Mathematics – Oil and Water?'

David Knapp

University of Leeds

By popular request, this will be another illustrated talk on the connections between Art and Mathematics.

A Practical Approach to Some Basic Geometrical Constructions

by Bill Bardelang

All too often, students encounter ruler-and-compass constructions by seeing them demonstrated, repeating them and then promptly forgetting even the simplest of them. Those who do recall a construction correctly have difficulty explaining why it works. Here is an approach to the topic that requires no more than some familiarity with quadrilaterals and a grasp of bilateral symmetry. We hope it will leave a more lasting impression.

Putting ruler and compass to one side for the moment, let us begin by making a “real” rhombus using four narrow strips of card hinged together at their ends using split pins. (See Fig.1.) We can vary the shape of our rhombus, yet it retains mirror symmetry about each of its diagonals. Using our model we identify that (i) the diagonals bisect the angles of the rhombus, (ii) the diagonals bisect each other at right angles. (It is not our aim to prove these properties.)

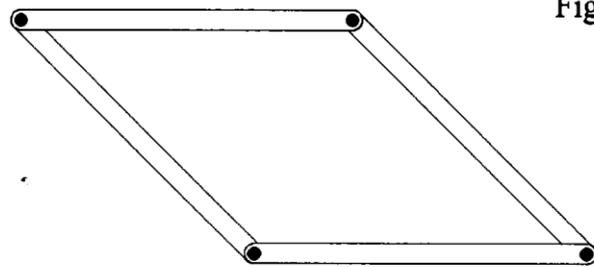
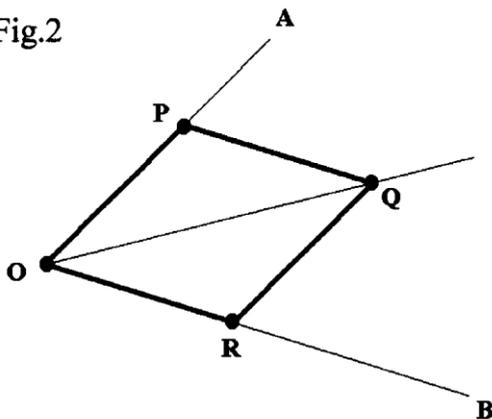


Fig.1

Fig.2



Given an angle AOB we line up our rhombus as shown in Fig.2. With one vertex at O and vertices P and R on OA and OB respectively, the diagonal OQ will bisect angle AOB. Now we point out that all of this can be done without an actual rhombus. Using the same compass setting throughout, we find P and R using arcs centred on O, then Q by two further, mutually intersecting arcs centred on P and R in turn.

To bisect a line segment AB, simply arrange for opposite vertices of the rhombus to coincide with A and B. (See Fig.3.) This is clearly impossible if AB is greater than twice the side of our rhombus, so take care if you are demonstrating this! When AB coincides with one diagonal of the rhombus, the other diagonal PQ bisects AB at right angles. Again, a ruler-and-compass construction will locate suitable points P and Q without the need for a physical rhombus.

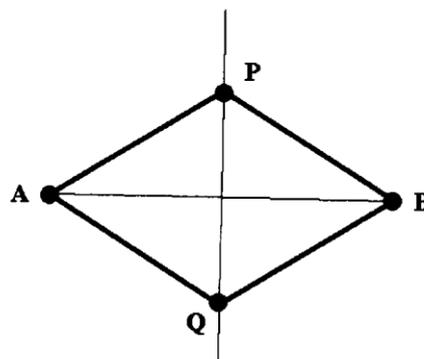


Fig.3

Dropping a perpendicular from a point to a line can also be done “by rhombus” and then “converted” into a ruler-and-compass construction. We leave this as an exercise for the reader.