

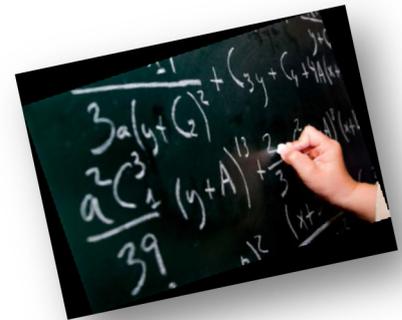
# Maths Problem-Solving Sessions for Sixth Formers at Cambridge University

**Year 12 and Year 13 students are invited to join a series of maths problem-solving sessions taking place on Thursdays from 4:15 to 6:15 at the Centre for Mathematical Sciences, University of Cambridge from November 2016 to May 2017.**

The sessions offer students the opportunity to develop their problem-solving skills by trying out challenging problems that require deep mathematical thinking, and so help them meet the challenges they may face in embarking on a maths-rich university course or career.

The problems students will tackle are fun and rewarding. Attending the sessions will enrich students' mathematical experience.

Students will look at problems from a range of sources including Sixth Term Examination Papers used by Cambridge and Warwick and the Mathematics Admissions Test used by Oxford and Imperial.



The sessions are not just for students who intend to sit these exams or even just for those planning to study maths at university. They are for anyone who is studying A-level mathematics and who enjoys solving challenging problems.

The series of sessions costs £20 per student. Students will be offered refreshment during each session and a problem-solving book.

**WHO?** Year 12 and Year 13 students who enjoy maths and solving problems.

**WHEN?** 4:15 – 6:15 pm on Thursdays 17 November, 1 December, 15 December, 5 January, 19 January, 2 February, 23 February, 2 March, 16 March, 30 March, 20 April, 4 May

**WHERE?** Centre for Mathematical Sciences, University of Cambridge, Wilberforce Road CB3 0WA

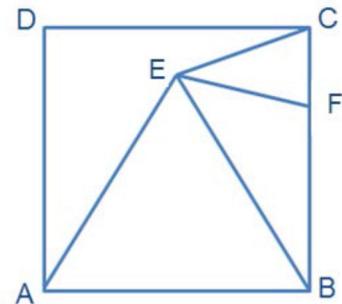
If you have any questions, please e-mail [kristincoldwell@furthermaths.org.uk](mailto:kristincoldwell@furthermaths.org.uk).

Students may book places online using <http://bit.ly/2dncaUa>. Please note that a debit or credit card is necessary for payment.

### Some problems for you and your students to try!

These are reproduced with the permission of the United Kingdom Mathematics Trust <http://www.ukmt.org.uk/> and feature in “A Problem Solver’s Handbook” by Andrew Jobbings. All students attending the sessions will receive a free copy of this book.

The diagram shows a square ABCD and an equilateral triangle ABE. The point F lies on BC so that  $EC = EF$ . Calculate the angle FEB.




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A particular four-digit number  $N$  is such that

- a) the sum of  $N$  and 74 is a square; and
- b) the difference between  $N$  and 15 is also a square.

What is the number  $N$ ?

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Sam wishes to place all the numbers from 1 to 10 in the circles, one to each circle, so that each line of three circles has the same total. Prove that Sam’s task is impossible.

