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Find the perfect UKMT problems for your lesson

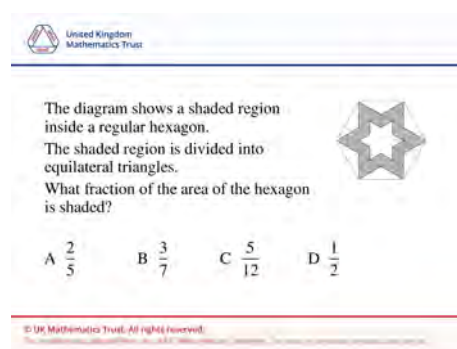
We hope you spotted on social media that you can now access UKMT problems online in two new ways, making it easier than ever for you to integrate these high-quality problems into everyday lessons.

Through our collaboration with Craig Barton (of mrbartonmaths.com) you can access modified versions of all Junior Mathematical Challenge problems for free through the Diagnostic Questions website (www.diagnosticquestions.com/UKMT). You can even assign quizzes to your class and track your students' responses. All other past problems from the Intermediate and Senior Challenges will be available soon too.

Thanks to Jamie Frost (of Tiffin School) you can access not only past Mathematical Challenge problems but those from Olympiads too. The system, available for free at drfrostmaths.com, will mark your students' answers and can learn from their answers to provide them with problems to challenge them further.

Finally, of course, you can still browse and download past Mathematical Challenge problems at www.ukmt-resources.org.uk.

We hope all of these resources will help you to find suitable UKMT problems to challenge all of your students to think mathematically.



Mathematical Challenges

Test your students' problem-solving skills by being part of next year's Mathematical Challenges! Entries are now being taken for the 2017/18 Senior, Intermediate and Junior Challenges.

Junior Mathematical Challenge 2017, question 4

A download is 95% complete. What fraction is yet to be downloaded?

- A $\frac{1}{2}$ B $\frac{1}{5}$ C $\frac{1}{9}$ D $\frac{1}{10}$ E $\frac{1}{20}$

An entry form can be downloaded from www.ukmt.org.uk.

DIARY DATES FOR 2017/18

MATHS CHALLENGE

Senior Tuesday 7 November 2017

Intermediate Thursday 1 February 2018

Junior Thursday 26 April 2018

FOLLOW-ON ROUND

MOG Thursday 5 October 2017
 Senior Kangaroo Friday 1 December 2017
 BMO1 Friday 1 December 2017
 BMO2 Thursday 25 January 2018

IMOK Kangaroo Thursday 15 March 2018
 IMOK Olympiad Thursday 15 March 2018

Junior Kangaroo Tuesday 12 June 2018
 JMO Tuesday 12 June 2018

TEAM CHALLENGE

Senior TMC
 TMC

REGIONAL FINALS

to December 2017
 to April 2018

NATIONAL FINAL

Tuesday 6 February 2018
 Monday 18 June 2018

Mathematical Olympiad for Girls

Entries are now being accepted for the UK Mathematical Olympiad for Girls (MOG), which is taking place on Thursday 5 October 2017. Through MOG, we hope to encourage and inspire more girls to get involved in advanced problem solving.

Some students can be discouraged from taking part in subsequent activities if they have a negative experience through sitting an Olympiad paper when they are not ready for it. Hence we recommend that students who are entered for MOG are confident mathematicians, aged approximately 16-18. They are likely to have already achieved some success at UKMT follow-on rounds or in the Mentoring Schemes.

The paper contains five questions to be answered in two-and-a-half hours. We encourage all interested students to attempt previous MOG questions before entering the competition. Past papers can be found at <https://bmos.ukmt.org.uk/home/ukmog.shtml>.

MOG also forms part of the process to identify potential squad members for the annual European Girls' Mathematical Olympiad and other international competitions. Therefore, students should be eligible to be part of the UK team (either

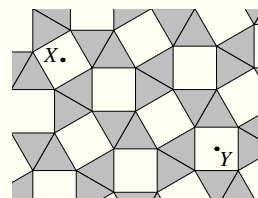
eligible for a UK passport describing them as a British Citizen, or will have completed three full years of full-time secondary education in the UK by the time they leave school).

MOG 2016, question 4

(a) In the trapezium $ABCD$, the edges AB and DC are parallel. The point M is the midpoint of BC , and N is the midpoint of DA .

Prove that $2MN = AB + CD$.

(b) The diagram shows part of a tiling of the plane by squares and equilateral triangles. Each tile has edges of length 2. The points X and Y are at the centres of square tiles.



What is the distance XY ?

MOG will be held on Thursday 5 October 2017. To enter your student, please complete the online entry form at https://www.surveymonkey.com/r/MOG_ENTRIES before the closing date of Monday 2 October. Your registration will be acknowledged. The paper will be sent by email to our registered Senior or Intermediate Challenge school contact on Tuesday 3 October. Entry to the competition is £12 per student, but this is waived for up to four entrants per school.

Senior Team Maths Challenge

As most people begin thinking about their summer holidays and dreaming of sunny days and ice creams on the beach, UKMT has already bypassed that and moved into thinking of autumn and winter things – scarves, boots, puddles and of course, the Senior Team Maths Challenge (STMC) Regional Finals, which take place every November and December around the country.



The STMC is a competition testing mathematical, communication and teamwork skills, with students competing against teams from other schools and colleges from their region. This year we will once again be running over 60 events, with a couple of new venues too, as we aim to reach even more schools and colleges across the country. Planning begins months in advance, to get materials written, checked, re-checked and published, venues booked,

volunteers trained, and all those pens ordered and packed, ready to send out to our host venues in October!

2017 marks the 10th year of the STMC, which is run jointly by the UK Mathematics Trust and the Further Mathematics Support Programme, and it has grown hugely in that time. Last year over 1200 schools competed in 63 Regional Finals, a higher number of competing teams than ever before, with 88 teams invited to the National Final in London in February. We look forward to welcoming you to this year's events!

STMC 2016 Regional Final Group Round, question 3

In 1929, Farmer Giles took his animals to market. He had some cows, sheep and chickens to sell.

Cows sold for ten pounds each.

Sheep sold for one pound each.

Chickens were sold for one pound for a brood of eight (they were only sold in whole broods).

Farmer Giles had a good day and sold 100 animals for exactly £100. The day did have its down side; he had to sell Daisy, his favourite cow.

How many sheep did Farmer Giles sell?

STMC entry forms will arrive in schools at the start of the autumn term, along with a copy of the winning poster from the National Final Poster Competition. Alternatively, an entry form can be downloaded from our website from the start of July.

British Congress of Mathematics Education

The four-yearly British Congress of Mathematics Education (BCME) takes place in Warwick from 3-6 April 2018. BCME is the largest mathematics or mathematics education conference in the UK, attracting delegates from all sectors. It brings together teachers from early years to higher education, researchers, teacher educators, CPD providers, advisers, consultants, policy makers, examiners and mathematicians from academia

and industry.

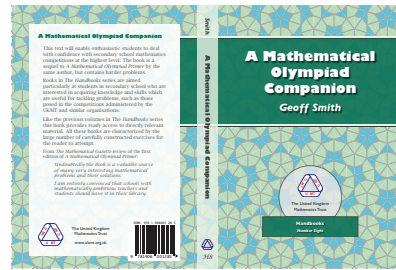
Invitations to contribute to BCME are open until the end of July. To find out more visit www.bcme.org.uk/Home.

The UKMT will be offering a small number of bursaries to help support those who wish to attend. Further details about this will appear in the September Maths Challenges News.

Publications Snippets

A Mathematical Olympiad Companion is a compendium of problems which have been set in the second round of the British Mathematical Olympiad from 2002-2016.

To find out more see shop.ukmt.org.uk/. UKMT publications are now also available to purchase via Amazon.



Welcome to Jess

Welcome to our newest member of staff! As our Receptionist and Communications Officer, if you contact the UKMT office, it's likely you'll hear from Jessica.

Jessica graduated from the University of York with a degree in Genetics in 2016. Jess has previously volunteered to help young people in schools, and is passionate about providing high quality customer service. In her spare time Jess enjoys the cinema, reading and taking part in 5K fun runs.



Sudoku

In Sudoku, every digit from 1 to 9 must appear in each of the nine rows, each of the nine columns, and each of the nine outlined boxes.

Enter our prize Sudoku! Entries are accepted from students and teachers, so do encourage others to enter. A draw from the correct entries will take place after the closing date and the winner will receive a book with a mathematical theme and a UKMT Megaminx. The winning name and affiliation will be published in a future edition of Maths Challenges News.

Please send entries (photocopies accepted) by the closing date of Friday 28 July 2017 to:

Sudoku,
UK Mathematics Trust,
School of Mathematics,
University of Leeds,
Leeds LS2 9JT

Don't forget to include your name, school name, and full school address!

Prize sudoku

			1	4		6	7
			9	6		1	
		8		2	3		
	3					7	4
8	7						2 6
5		2					3
		5	4		3		
	8		2	7			
3	2		1	6			