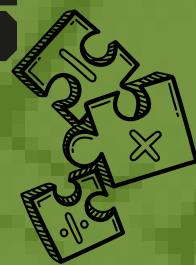


ST MALACHY'S COLLEGE

MATHS NEWSLETTER

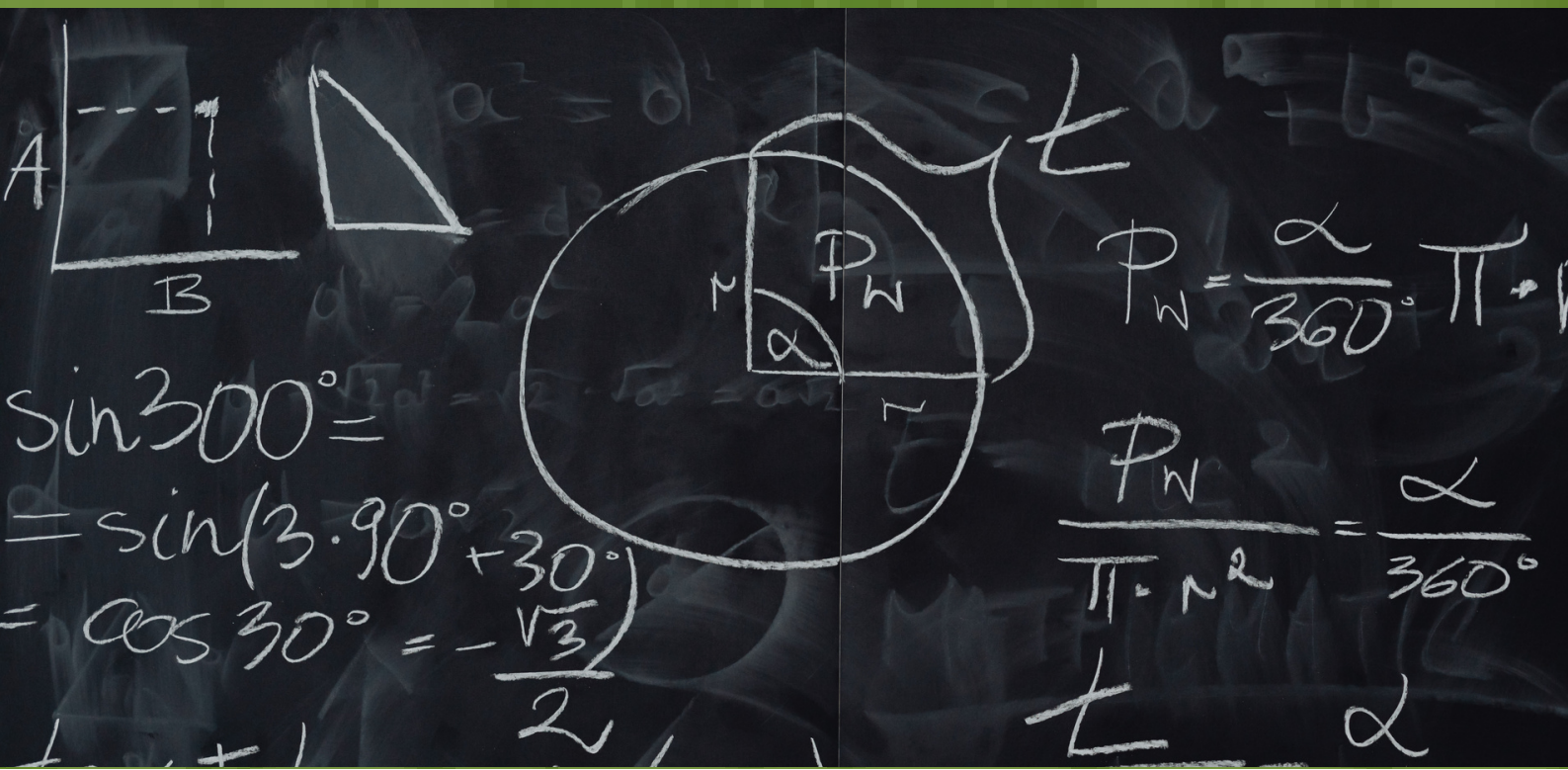


WELCOME!

Hello and welcome back to our maths newsletter! Once again we will be showcasing the amazing achievements of our students following their first CAT, all while giving maths the spotlight it truly deserves. This month, we're continuing with more puzzles and have some nice tricks and tips to help with studying for maths coming up to the Christmas exams. In addition, we will be showcasing our senior mathematicians following this year's senior UKMT math challenge.

The school year is off to a fantastic start, with our boys settling in and getting back to business following the mid-term break.

Scroll down to catch up on all what happened during the month of October!



YEAR 8 NEWS

The year 8 cohort finished October with developing an understanding of factors, multiples and prime numbers. This topic gives a lot of scope for GCSE, where factors and multiples support the understanding of multiplication and division, and later on, factorisation. In addition, students studied in depth about prime numbers, which then allowed them to express any number as a product of primes, something that was first discovered by Euclid, way back in 300BC. Prime numbers are now used extensively in modern cryptography, where prime factorisation is an important tool in number theory and cryptography.

Any number either is prime or is measured by some prime number.

— Euclid, Elements Book VII, Proposition 32



Mathematicians of the month

8A - James Magee

8B - Patrick O'Prey

8C - Alex Slezak

8D - Aidan McGarrell

8E - Niall McAuley

8F - Oisin McCann



A massive well done to these boys for their tremendous work during October

The primorial of a number is the product of all the prime numbers less than or equal to that number. For example, the primorial of 6 is $2 \times 3 \times 5 = 30$.
What is the primorial of 25?



Year 8 puzzle

HELPING PUPILS WITH STUDYING FOR CHRISTMAS EXAMS

Taken from Karen Knight on twitter (@KKNTeachLearn), something to help pupils develop studying techniques is asking if their revision is FLAT. It's hard finding a starting point when preparing for exams, and with this technique, it can make it just a little bit easier. So next time you say to a teacher "I don't know how to study!" Remember a good starting point is to make your revision FLAT.



Focused

Put your phone away

Turn the music off

Avoid distractions

Be in the right
physical place to
revise

Be in the right frame
of mind to revise



Long-Term

Start early to cut down
on stress later towards
exams

Make a revision
timetable and commit to
it

Plan for 3-4 hours a
week from November

Interleave different
topics



Active

Engage your brain by
actively creating
revision resources

Test yourself, get others
to test you

Practice exam
technique by writing or
planning answers

Revise what you
struggle with



Transformed

Transform the knowledge
you want to learn into a
different format.

Make flashcards
Produce a timeline
Take cornell notes
Create a mindmap
Design a flowchart
Attempt past paper
questions
Create a solution paper
for your peers

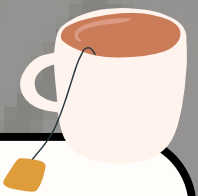
Here are some more great websites to help with your studying!

<https://corbettmaths.com/contents/>

<https://www.dr frostmaths.com/> (Ask your teacher how to login)

<https://ccea.org.uk/key-stage-4/gcse/past-papers-mark-schemes>

IT'S TIME FOR A BREAK



Dr Stevenson's question of the month

There are 3 full forwards to be selected
for the Year 8 Hurling team.

They are to be chosen from the 20 man
squad.

In how many ways can Ms Norton and Ms
Bell make their selection?



Fibonacci sequence

I
wrote
a poem
on a page
but then each line grew
to the word sum of the previous two
until I began to worry about all these words coming with such frequency
because as you can see, it can be easy to run out of space when a poem gets all Fibonacci sequence

Brian Bilston

Picture Puzzle

$$39 = \text{Iron Man} + \text{Iron Man} + \text{Hulk}$$

$$\text{Iron Man} - \text{Captain America} = 10$$

Find the value

$$\text{Spider-Man} = \text{Groot} \times \text{Captain America}$$

of each

$$16 \div \text{Groot} = 8$$

avenger below

$$\text{Iron Man} = \text{Hulk}$$

$$\text{Iron Man} + \text{Hulk} + \text{Spider-Man} - \text{Captain America} = ?$$



Why do we use 'x' to denote the unknown?



Why is 'x' the unknown? - Terry Moore

TED-Ed ✓

63K views • 10 years ago



https://www.ted.com/talks/terry_moore_why_is_x_the_unknown?language=en

30 second brain teaser

Boost your brain power with our 30- second test. Start with the number on the left and follow the instructions. Try and aim for 30 seconds for each one!

START

32	+22	÷ 2	-7	x4	-25	x5	+25	5/6 of this	
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FINISH

START

140	15% of this	+29	4/5 of this	+49	reverse the digits	1/2 of this	+51	7/20 of this	
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FINISH

START

21	-8	x11	+157	5/12 of this	+75	3/10 of this	-42	Increase by 50%	
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FINISH

YEAR 9 NEWS

The year 9 boys had a busy end to October doing a lot of “hands on maths” By that we mean the use of protractors, rulers, and compasses!

Drawing triangles, scale drawings, and bearings were the topics at hand in October. Bearings are a vital tool for navigation, whether you're on land or at sea. They are not just used in GCSE maths, but also used in everyday life in a variety of ways. For example, you can use them to indicate direction on maps and globes, or steer a ship and a boat along an axis of travel at sea.



Mathematicians of the month

9A - Peadar Sheridan



9B - Stephen McCullagh



9C - Marcus Lawniczak



9E - Gerard McKenna

9F - Patrick-John McCullagh

A massive well done to these boys for their tremendous work during October

The bearing of Paris from London is 149°
Work out the bearing of London from Paris.



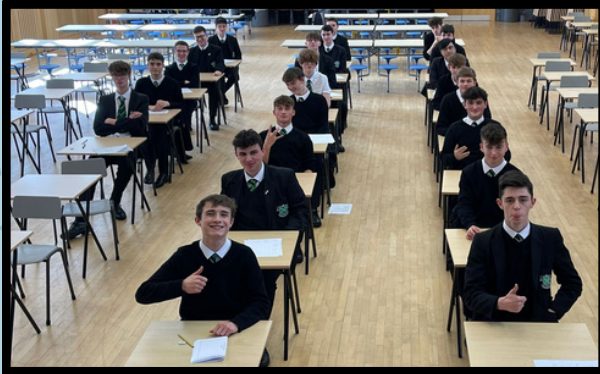
year 9
puzzle



UK Maths Trust

On October 3rd, a selection of year 13 and 14 boys took part in the first of three UKMT challenge rounds. The UKMT Challenges are designed to be challenging yet accessible and aim to foster a love for problem-solving and a sense of achievement. In St Malachy's, we use these challenges to engage and challenge our top performing students, providing enrichment opportunities beyond the regular curriculum and offering them a chance to showcase their talents on a different stage.

This first round challenge is a 90 minute, 25 multiple choice question paper. The problems on the Senior Maths Challenge are designed to make students think, not guess, where more satisfaction and higher attainment is gained by doing a few questions carefully, rather than by guessing lots of answers. This paper is about solving interesting problems, not about lucky guessing!



SENIOR MATHEMATICAL CHALLENGE

Tuesday 3 October 2023

1. What is the value of $\sqrt{\frac{2023}{2+0+2+3}}$?
A 13 B 15 C 17 D 19 E 21
2. What is the difference between one-third and 0.333?
A 0 B $\frac{3}{1000}$ C $\frac{1}{3000}$ D $\frac{3}{10000}$ E $\frac{1}{30000}$
3. The base of a triangle is increased by 20% and its height is decreased by 15%.
What happens to its area?
A It decreases by 3% B It remains the same C It decreases by 2%
D It increases by 2% E It increases by 5%
4. In 2016, the world record for completing a 5000m three-legged race was 19 minutes and 6 seconds. It was set by Damian Thacker and Luke Symonds in Sheffield.
What was their approximate average speed in km/h?
A 10 B 12 C 15 D 18 E 25

11. Wenlu, Xander, Yasser and Zoe make the following statements:

Wenlu: "Xander is lying."

Xander: "Yasser is lying."

Yasser: "Zoe is telling the truth."

Zoe: "Wenlu is telling the truth."

What are the possible numbers of people telling the truth?

- A 1 or 2 B 1 or 3 C 2 D 2 or 3 E 3

23. The length of a rectangular piece of paper is three times its width. The paper is folded so that one vertex lies on top of the opposite vertex, thus forming a pentagonal shape.

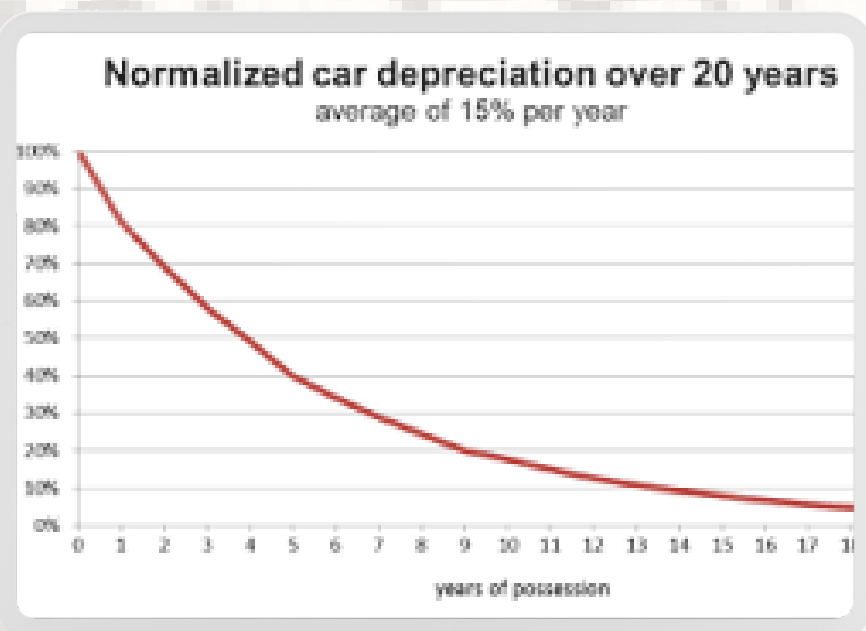
What is the area of the pentagon as a fraction of the area of the original rectangle?

- A $\frac{2}{3}$ B $\frac{11}{16}$ C $\frac{12}{17}$ D $\frac{13}{18}$ E $\frac{14}{19}$

A huge congratulations to these boys who took part. Awards will be distributed and highlighted in next month's newsletter once received.

YEAR 10 NEWS

The year 10s took a big leap to real life finances by working with percentages in October. This busy topic consolidates knowledge of fractions, decimals, and percentages of amounts, by then extending to real life concepts like depreciation, compound interest, and working out income tax. The boys in particular enjoyed working on examples that were of interest to them, for example, why a car loses between 9% and 15% of its value as soon as you buy it, or how a simple investment can become a big earner in years to come in the right bank account. More interestingly however, the boys found it funny why in the 1600s the infamous window tax led to the term “daylight robbery” meaning people went to extraordinary lengths to brick up their windows in order to avoid paying the tax!!



Mathematicians of the month

Ruairi Lappin

Kevin Hoyne

Tadhg Duffy

Jude O'Carroll

Oisín McDade

Oisín McKenna

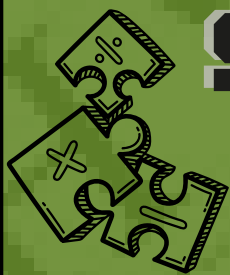
A massive well done to these boys for their tremendous work during October



My bargain settee cost me £240 in a sale offering 25% reductions on all items. How much did I save?



year 10
puzzle



ST MALACHY'S COLLEGE

MATHS NEWSLETTER



GET INVOLVED!

If you want to help and get involved in the Mathematics newsletter then speak to your teacher. It would be great to have an input from pupils sharing their stories, homework or future job prospects.

Useful maths revision websites

- www.corbettmaths.com
- <https://www.bbc.co.uk/bitesize/subjects/z38pycw>
- <https://www.maths4everyone.com>

Fun maths videos

- https://www.ted.com/playlists/189/math_talks_to_blow_your_mind

Know your history.

- <https://mathigon.org/timeline>

Get data literate with some Beautiful News

- <https://informationbeautiful.net/beautifulnews/>

Have fun with more maths activities!

- <https://mathigon.org/activities>