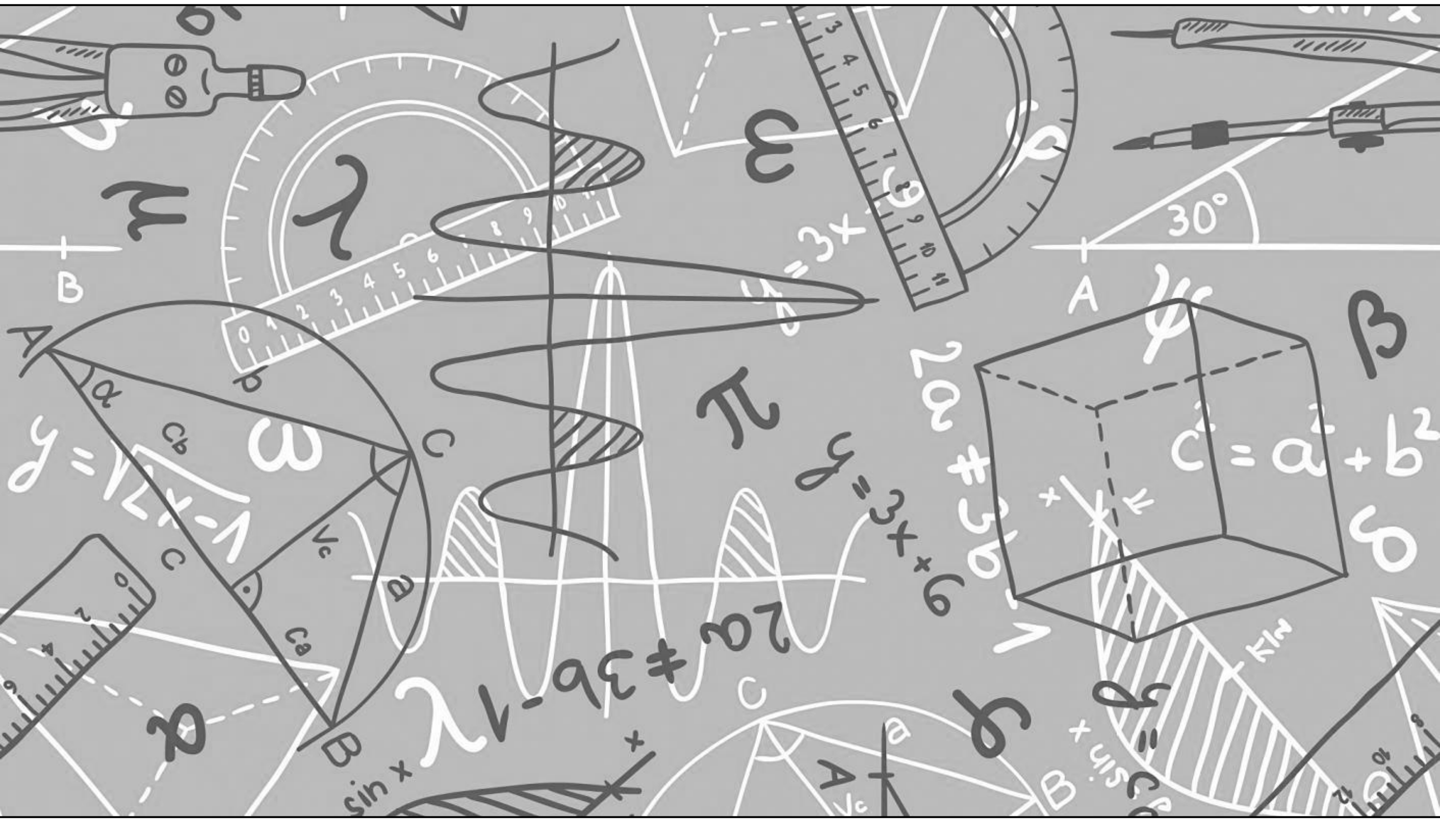
Maths



We can't wait to meet you...

All the Maths teachers at Upton Hall are very much looking forward to meeting you! Well all love our subject and can't wait to explore, investigate and discover new mathematical ideas with you. This booklet will give you a chance to get to know the Maths department a little before you start and keep your brain active over the Summer holidays.

Meet the department...

In the Maths department we have seven Maths Teachers. Throughout this booklet you will find out about some of our favourite Maths related things. Come back to this page to fill those in, can you find them all?

MR NALL

Favourite Number:

Favourite Mathematician:

MR FITZGERALD

Favourite Number:

Favourite Mathematician:

MISS HEATLIE

Favourite Number:

Favourite Mathematician:

MISS MCGIVERN

Favourite Number:

Favourite Mathematician:

MR CAMSELL

Favourite Number:

Favourite Mathematician:

MISS POWELL

Favourite Number:

Favourite Mathematician:

MR LEE

Favourite Number:

Favourite Mathematician:

Mathswatch

At Upton Hall all of our students use the excellent online learning tool **Mathswatch**. When you join us in September, we will set up your Mathswatch account and teach you how to use it.

The VLE platform contains videos, practice questions, interactive questions, and worksheets covering the content of the Maths at KS3 and GCSE.

With Mathswatch, you can access video tutorials that explain topics just like a teacher would in your classroom. You can independently practice real exam-style questions with instant feedback on your performance.

You can also complete assignments set by your teacher with instant feedback provided to both you and your teacher.

Mr Fitzgerald's favourite number is φ, the golden ratio. This is a very special irrational number. Make sure you ask him about it when you meet him in September.

Miss McGivern's favourite number is a 1 followed by 100 zeros. Can you find out its special name?

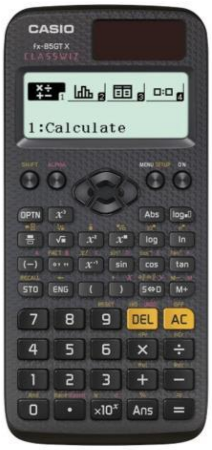
Mr Lee's favourite number is imaginary! It is equal to $\sqrt{-1}$. Can you find what letter of the alphabet represents this number?

Mr Nall's favourite Mathematician is French and has his own triangle named after him! Can you find out who this is?

Maths equipment

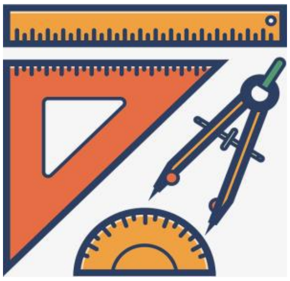
Secondary school mathematics is so exciting!

To be able to take part in all of the fun things you'll do in your Maths lessons, you need to have the correct equipment.



You should have a writing pen, pencil, ruler, rubber and a few different coloured pens.

You'll start using a calculator in lessons. We'll all use the Casio FX83-GTX, but you'll have plenty of time to buy one through us if you don't purchase one over the Summer. The most important thing is that you put your name on it when you get one, otherwise we'll get them all in a muddle!

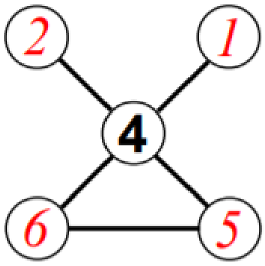


In the first term of Year 7 you'll also need a protractor and a pair of compasses.

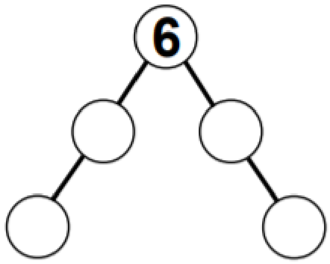
> Miss Heatlie's favourite number is the square root of nine!

Totalines

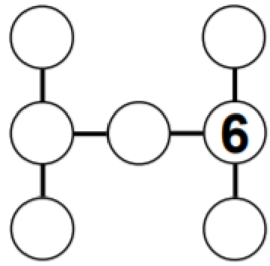
Numbers have to be placed in the empty circles. The numbers to be used are listed under each diagram and no given number may be used twice. The object is to place the numbers so that all those which lie along a straight line, as shown by the lines drawn, add up to the total which is also given under the diagram. The first one has been done for you.



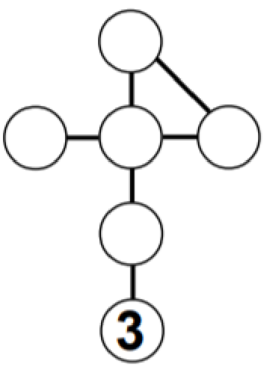
Use 1, 2, 5, 6
Total **11**



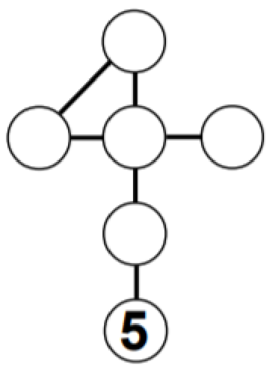
Use 2, 3, 4, 5
Total **13**



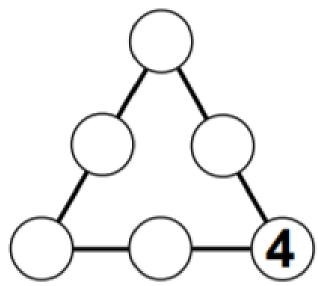
Use 0, 1, 2, 3, 4, 5
Total **10**



Use 1, 2, 4, 5, 6
Total **11**

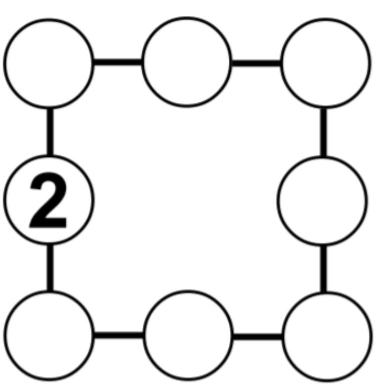


Use 0, 1, 3, 4, 6
Total **10**

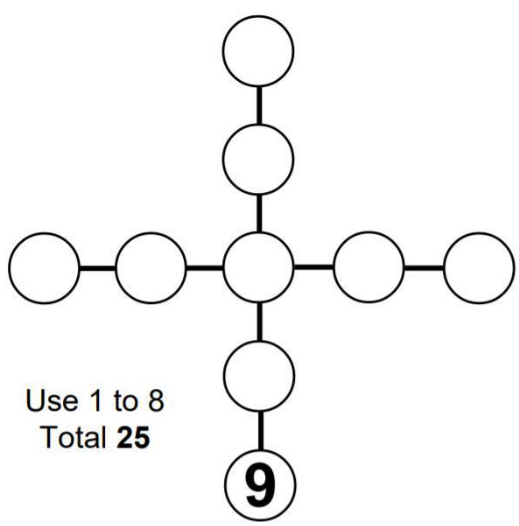


Use 0, 1, 2, 3, 5
Total **9**

CHALLENGE!



Use 3, 4, 5, 6, 7, 8, 9
Total **18**



Use 1 to 8
Total **25**

Miss Powell's favourite Mathematician has a famous piece of work called his "last theorem." Who is it?

Mr Nall's favourite number is the smallest perfect number!

Word searches

Each of the blocks of letters below represents a maze. A way has to be found through the maze moving (up and down or across but **not** diagonally) from letter to letter. No letter may be used twice. In some cases arrows show where the maze is to be entered and left. The letters visited must spell words as you go, and these words can be written on the dashed lines to the right of each maze. The number of dashes show how many letters are in each word. The first one has been started.

↓ ↑

M E R E E R U
R T G E E A S
E D E D M M U
M I C E R E S
A L N V A U Q
E H 0 E I C S
X A G R T A L

M E T R E
D E G R E E
D E C I _ _ _
_ _ _ _ _ _ _
_ _ _ _ _ _ _ _
_ _ _ _ _ _
_ _ _
_ _ _ _ _ _ _

↓ ↑

C E R T I L
I R O R L E
L C T C I N
E O D A F T
A A D B T C
R E S U R A

_ _ _ _ _ _
_ _ _ _
_ _ _
_ _ _ _ _ _ _ _
_ _ _ _ _ _
_ _ _ _
_ _ _ _ _

↓

G M E L E P
E O T G N O
N Y R R A L
U M B E G Y
O S U N O D →
B L L P M I
N O I M A R
G P R E P Y

_ _ _ _ _ _ _ _
_ _ _ _ _ _
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_ _ _ _ _ _ _
_ _ _ _
_ _ _ _ _ _
_ _ _ _ _
_ _ _ _ _ _ _

O I T D I O
R R A O U B
E D T C C N
I N A G T O
L Y C O E S ←
B U S N R Q
M O H R A U

_ _ _ _ _ _
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_ _ _ _ _ _ _
_ _ _ _ _ _ _ _
_ _ _ _ _

Mr Camsell's favourite number is $3^2 - \sqrt{4}$

Key Skills 1 …

Spend 10 minutes completing the skills check questions based on topics from Y6.

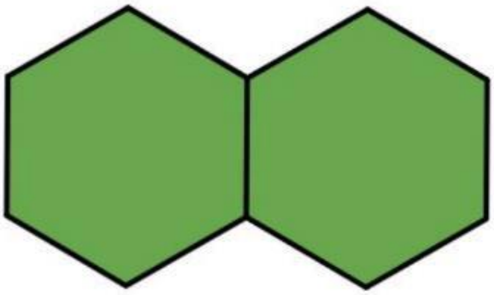
Question 1 Write in figures : thirteen thousand, five hundred and two units	**Question 2** Write in figures : seventy seven thousand, eight tens and three units	**Question 3** List the factors of 51	**Question 4** List the factors of 36
Question 5 Work out 7 × 10 =	**Question 6** Work out 10 × 10 =	**Question 7** Simplify $\frac{8}{16}$	**Question 8** Simplify $\frac{12}{42}$
Question 9 Find 50% of £180	**Question 10** Find 25% of £120	**Question 11** Round 2084 to the nearest 100	**Question 12** Round 3372 to the nearest 10
Question 13 Work out 86 × 8 =	**Question 14** Work out 630 × 9 =	**Question 15** Simplify 5c + 5c + 6c	**Question 16** Simplify 10a + 2b + 8a + 7b
Question 17 Work out 39253 + 15736 =	**Question 18** Work out 30730 + 18364 =	**Question 19** Work out 8 × 2 - 5	**Question 20** Work out 6 + 11 × 3

SKILLS CHECK

Score

Miss McGivern's favourite Mathematician is Fibonacci who was an Italian man who studied math and theories back in the 11th century. He discovered a pattern called the Fibonacci sequence. It's a series of numbers that starts with 0 and 1, and each number after is found by adding the two previous numbers (0, 1, 1, 2, 3, 5…) The sequence just keeps going on and on. Can you find the first 10 numbers in the sequence?

A Hexagon Problem



Heather can make two connected hexagons by drawing 11 lines.

What is the minimum number of lines Heather needs to draw 12 hexagons?

Extension: What numbers of hexagons are the most efficient to draw and why?

This problem is taken from puzzleoftheweek.com. If you enjoy doing puzzles then have a go at the weekly problems on this website.

Mr Camsell's favourite Mathematician was Swiss and went to the University of Basel. His is know for creating different ways to write mathematical ideas (we call this Mathematical notation.) He has his own 'identity.' Can you find out his name?

Number art

At Upton Hall, we are so proud to display our pupils' work in the classrooms and around the department.

Have a look at some of the number art below. Can you make up your own? It could end up on display in September!

Key Skills 2 …

Miss Powell's favourite number is the product of 3 x 3 x 3

Spend 10 minutes completing
the skills check questions based on topics from Y6.

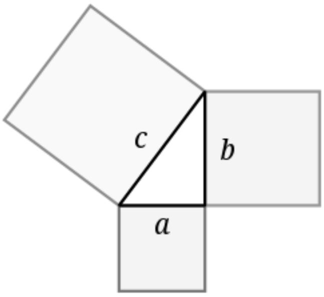
Name : 61.2

Question 1 Write in figures : six thousand, four tens and six units	**Question 2** Write in figures : One hundred and twenty six thousand, nine tens and three units	**Question 3** List the factors of 30	**Question 4** List the factors of 20
Question 5 Work out 306 × 1000 =	**Question 6** Work out 34 × 1000 =	**Question 7** Simplify $\frac{20}{70}$	**Question 8** Simplify $\frac{18}{63}$
Question 9 Find 75% of £720	**Question 10** Find 75% of £500	**Question 11** Round 6199 to the nearest 100	**Question 12** Round 2096 to the nearest 1000
Question 13 Work out 77 × 9 =	**Question 14** Work out 397 × 6 =	**Question 15** Simplify 9x + 4x - 3x	**Question 16** Simplify 10a + 3b + 7a + 6b
Question 17 Work out 37959 + 32050 =	**Question 18** Work out 24509 + 19451 =	**Question 19** Work out 5 × 2 + 2	**Question 20** Work out 5 × 4 + 3

SKILLS CHECK

Score

www.mathsbox.org.uk



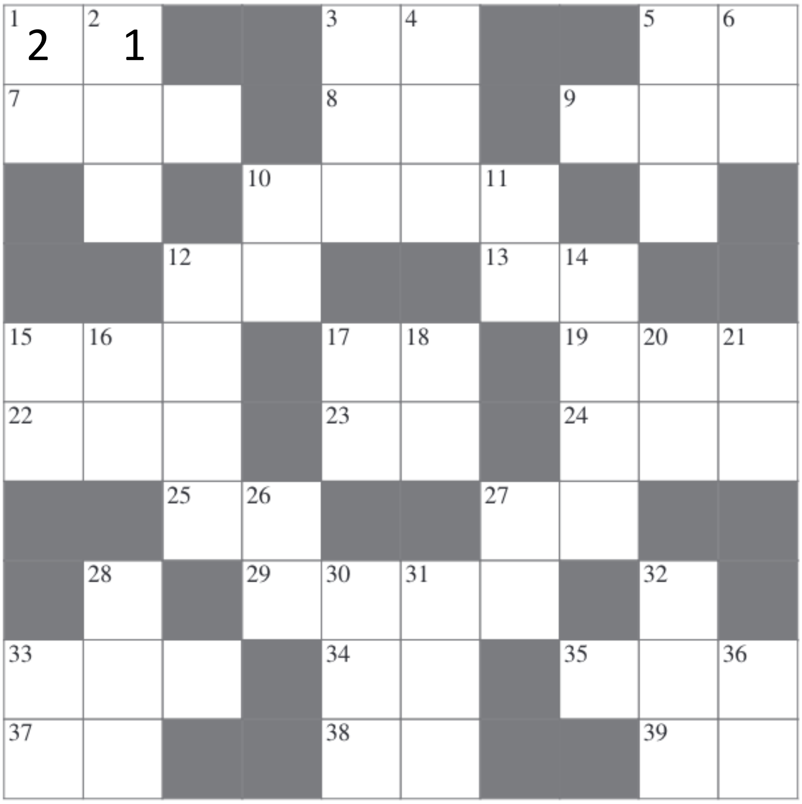
Pythagoras of Samos was a famous Greek mathematician and philosopher (c. 570 – c. 495 BC). He is known best for the proof of the important Pythagorean theorem, which is about right angled triangles. He started a group of mathematicians, called the Pythagoreans, who worshiped numbers and lived like monks.

Can you find out what the Pythagorean theorem is? You will use it in Year 8.

Mr Fitz's and Mr Lee's favourite mathematician

Cross Number

USE THE QUESTIONS BELOW TO COMPLETE THE CROSS NUMBER.



Miss Heatlie's favourite Mathematician is a lady who was born in 1815. She worked on creating the first computer known as the Analytical Machine. What is her name?

ACROSS

1. The number of spots on a standard dice (2)
3. The largest two-digit multiple of 13 (2)
5. One more than 8 Across (2)
7. One quarter of the square of 6 Down (3)
8. $2 \times 2 \times 2 \times 2 \times 2$ (2)
9. A cube number (3)
10. 15 Across + 3 Down + 6 Down + 21 Down + 36 Down (4)
12. 39 Across − 33 Down (2)
13. Twice (1 Across + 1 Down) (2)
15. 1 Down × 38 Across (3)
17. 36 Down − 8 Across (2)
19. A square number (3)
22. The smallest three-digit square number with all its digits different (3)
23. 1 Across + 6 Down (2)
24. A multiple of 4 Down (3)
25. 27 Across + 37 Across (2)
27. 39 Across + 1 Down (2)
29. 200 × 12 Across + 27 Down (4)
33. 10 times 2 dozen (3)
34. A square of a square number (2)
35. 5 × 1 Across + one-seventh of 12 Across (3)
37. A half of 8 Across (2)
38. A cube number (2)
39. One less than 6 Down (2)

DOWN

1. A prime number (2)
2. The sum of the first ten prime numbers (3)
3. The number of hours in 39 days (3)
4. $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$ (3)
5. 22 Across + 28 Down (3)
6. The number of minutes in three-fifths of an hour (2)
10. A multiple of 7 (2)
11. 3 × 37 Across (2)
12. (22 Across − 6 Down) × 9 (4)
14. A number all of whose digits are the same (4)
15. A prime number (2)
16. 27 Across − 8 Across (2)
17. A multiple of 9 (2)
18. A prime number (2)
20. A square number (2)
21. The square of a square number (2)
26. 3 × 12 Across (2)
27. Two-thirds of 36 Down (2)
28. 22 Across − 1 Down (3)
30. 1 Across × 26 Down (3)
31. 25 Across + 4 Down + 5 Down (3)
32. 17 Down + 27 Across (3)
33. The sum of the digits of 1 Down, 17 Across and 17 Down (2)
36. One and a half times 27 Down (2)