# Rainford High Maths Department Welcome Pack

We can't wait to meet you and welcome you to our school properly but in the meantime, here is some information about Maths at Rainford High School.

We've also included some activities that you might want to do in the Summer to keep up your Maths skills.

In your Maths lessons we will help you to…

Develop fluency. This means developing your number, algebra and language skills so you can accurately use Maths to solve a variety of problems. We will also be looking at the different ways we can use graphs and diagrams to represent concepts and ideas and develop our understanding.

Reason Mathematically. We'll be encouraging you to make connections between different areas of Maths and to use this understanding to help you to solve more complex problems using a variety of strategies. You will explore different methods and discuss why things work or don't work. You will use language, number, algebra, geometry, measures and statistics to explain your reasoning and understanding. You will also be asked to analyse methods used by others.
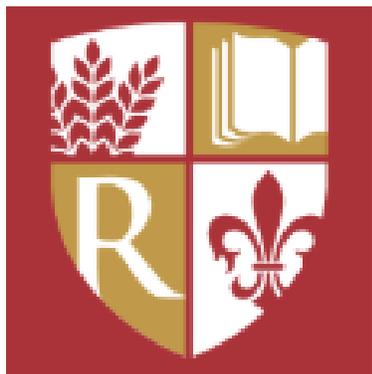
Solve Problems. This is why Maths skills are so important. You'll be looking at ways to interpret and solve problems mathematically using a variety of skills. As you become more confident you will be able to use your Maths skills to solve multi-step problems. The aim is to be able to select an appropriate technique to solve an unfamiliar problem from the wealth of mathematical skills and techniques you will develop.

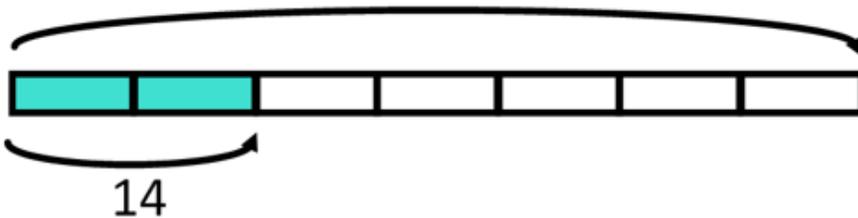EVERYONE MATTERS EVERYONE HELPS EVERYONE SUCCEEDS

Number

Can you put the numbers 1 to 7 in each circle so that the total of every line is 12?

-6 -2 4

$-$ $+$
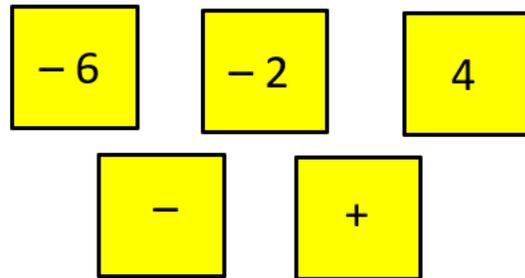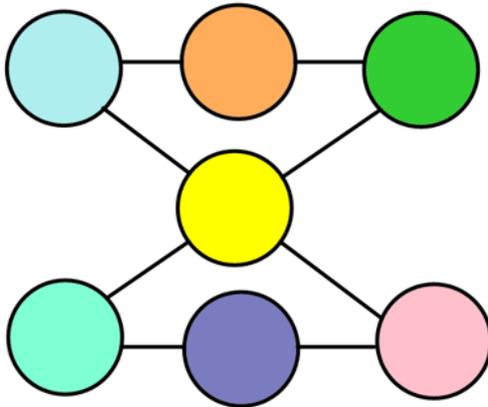
Using each card only once what is the largest answer you can find? What is the smallest?

Write a question

?

14

What question could the bar model represent?
How would you use it to answer the question?
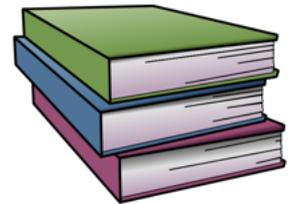
What else do you know?

40% of a number is 60

Jimmy wants to buy 3 books.
They each cost £12
Which offer should he choose?

Offer 1
20% discount on each book

Offer 2
Buy two get the third half price

Offer 3
£5 off (the total cost)

Which of these has the greatest answer?

$$\frac{3}{4} + \frac{1}{2}$$

$$\frac{3}{4} \times \frac{1}{2}$$

$$\frac{3}{4} - \frac{1}{2}$$

$$\frac{3}{4} \div \frac{1}{2}$$

Can you justify your answer without doing any calculations

Algebra

Think of a number

Add 5
Double it
Subtract 10
Find $\frac{1}{5}$ of it
Halve it

What did you get?

How does this work?
Can you write it as a series of algebraic expression?

What are the values of the following expressions?

m = 2   a = 3   t = 9   h = 5   s = 7

h + s

h - a

ma

$\frac{t}{a}$

Can you find a different way of getting these values?

$$a = 2, \quad b = 3, \quad c = -4$$

Using all three letters, create expressions that have a value of 12.
How many can you find?
How complicated can you make your expression?
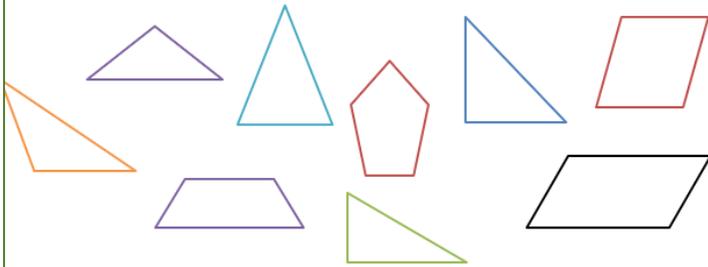Can you use all four operations, powers and brackets in the same expression and still make the value 12?

I double a number and add on 7. The answer is 30.
Form an equation to represent this information.
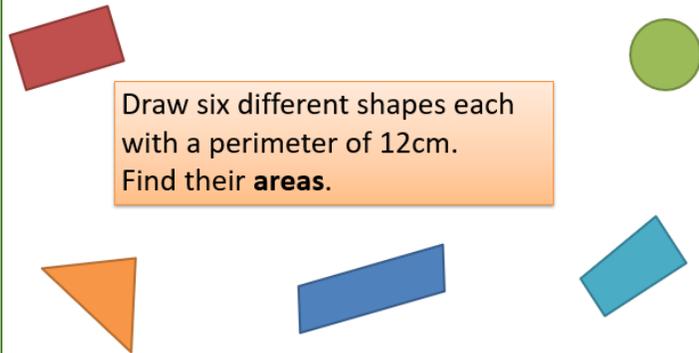Find three ways to work out the original number.

Shape

Sort these shapes into groups

What are their mathematical names? Which ones are regular?

Draw six different shapes each with an area of 12cm^2.
If possible, find their perimeters.

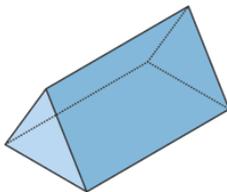Draw six different shapes each with a perimeter of 12cm.
Find their **areas**.

Sketch three different nets for a cube

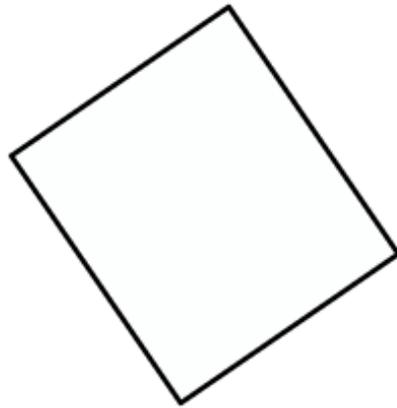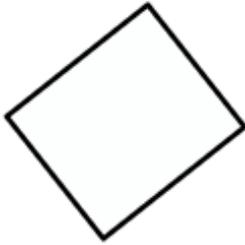Sketch three different nets for a pyramid

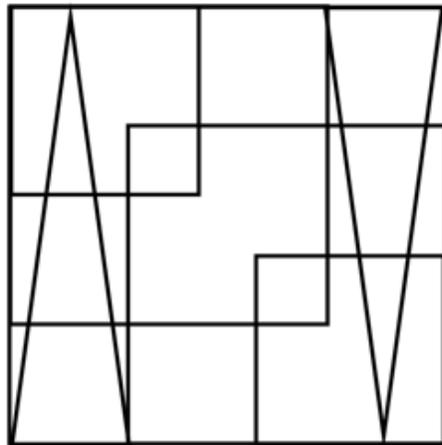Sketch three different nets for a triangular prism

Perimeter of 30

How many different rectangles can you make with a perimeter of 30?

What length sides would you need to create a square?

How many squares and triangles can you find in the diagram below?

How many different shapes can you find?