Algebra

Recall

Match the command word to what it is asking you to do:

Solve	Get rid of the brackets
Factorise	Find the value of the unknown
Substitute	Put the brackets in
Expand	Make the expression less complicated
Simplify	Swap the letters for numbers

Match these words correctly to what is shown on the right:

Equation	5b + 7c
Expression	5c
Identity	5(b + 2) = 5b + 10
Term	A = l x w
Formula	5b + 2 = 12

Complete these formulae:

Density = _____

Speed = _____

Pressure = _____

Area of a parallelogram =

Area of a triangle =

Area of a circle =

Apply

Solve these equations:

b + 3 = 19

5c = 70

2h – 16 = 20

$\frac{10}{d} = 5$

Expand these expressions:

5(2b + 8)

3d(d – 5)

$(x + 3)(x + 7)$

Fully factorise these expressions:

5y – 10

$12x^2y + 18xy^3$

$x^2 + x - 6$

Substitute y = 5, z = 2 and t = -3 into:

$y^2 + z$

5z + 2t

Simplify

c + c + c

c x c x c

$3p^2 + 8p + 4p^2 - 3p - 8$

Sequences

Write the next three terms of the sequence:

5, 8, 11, ___ , ___ , ___ …

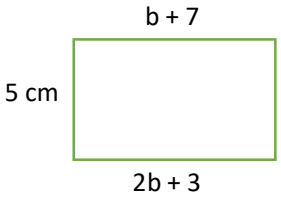
What is the n^{th} term?

What is the 200^{th} term?

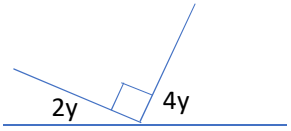
Is 105 a term?

Thinking questions….

What is the area of this shape?



What is the value of y?



A taxi firm, TAXI MAXI, charges a three pounds fixed charge and then fifty pence per mile.

Let the cost of the journey be given by 'C' and the number of miles be given by 'm'.

Write a formula for C in terms of m.

What is the cost of a 12 mile journey?

A student has fifteen pounds – how far can she travel with TAXI MAXI?

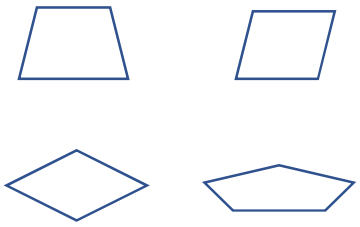
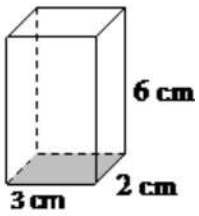
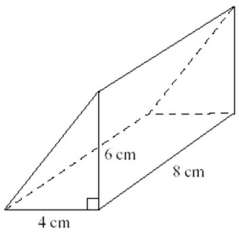
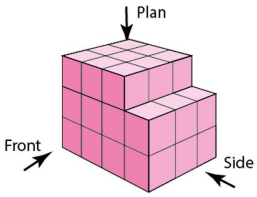
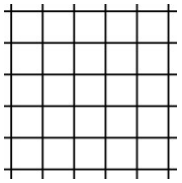
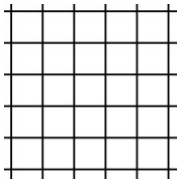
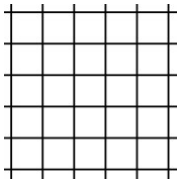
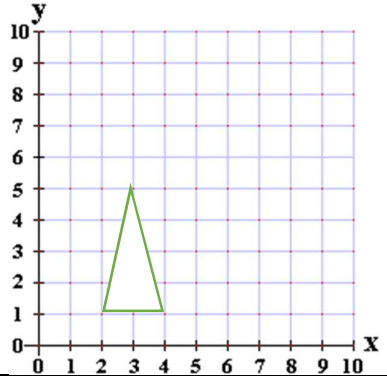
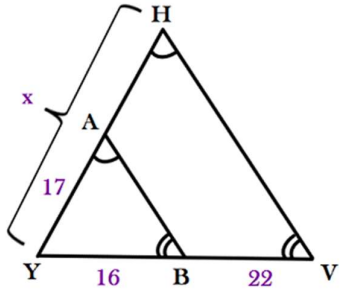
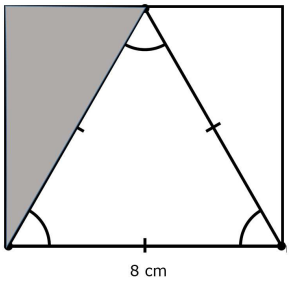
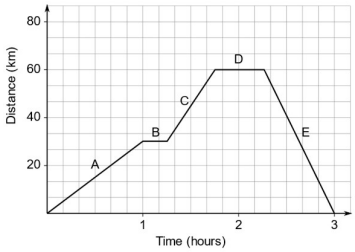
A second taxi firm, CABBY WABBY, has no fixed charge and instead charges one pound fifty per mile.

For what distance of journey do the two taxi firms charge the same amount?

Ratio and Proportion

	Recall	Apply	Thinking questions….
	What is the ratio of grey to white rectangles shown below?  Write an equivalent ratio to the one you just wrote: What proportion of the rectangles are grey? What proportion of the rectangles are white? If the proportion of female students in a class is $\frac{3}{4}$, what is the proportion of male students? **Start applying….** 8MA4 has 25 students, 15 are male and 10 are female. 8MA7 has 20 students, 12 are male and 8 are female. Compare the proportion of male students in each class.	Emily and Jay share some money in the ratio 4 : 7. Jay gets £24 more than Emily. How much did they each get? The following recipe makes 12 cakes: 150 g flour 200 g butter 75 g sugar 2 eggs How much of each ingredient would you need for 18 cakes? _____ flour _____ butter _____ sugar _____ eggs If I had 500g of butter and as much as I wanted of the other ingredients, how many cakes could I make? In the ingredients, what is the ratio of flour to butter to sugar in its simplest form? What happens to the proportion of the cake that is flour if you <u>only</u> increase the amount of sugar in the ingredients?	A ruler is cut into two sections, A and B. Section B is 4 times as long as section A. The total length of the ruler is 90 cm. How long is each section? In a triangle the ratio of the angles is 1 : 2 : 3 What is the size of the largest angle? What is this type of triangle called?

Geometry and Measures

	Recall	Apply	Thinking questions….
	What are the four types of **transformation**? 1) 2) 3) 4) Congruent shapes are _____ in shape and size. Similar shapes are _____ of each other. Name these shapes  How many **vertices** does a hexagon have? **Complete the following conversions:** 1 kilogram = _____ grams 1 litre = _____ millilitres 1 litre = _____ cm^3 1 litre = _____ centilitres 1 ton = _____ kilograms 1 metre = _____ centimetres 1 kilometre = _____ metres 1 centimetre = _____ millimetres 1 hour = _____ minutes 1 fortnight = _____ days 1 year (not leap year) = ____days 1 day = _____ hours 1 minute = ____ seconds	**Calculate the surface area of this cuboid:**  **Find the volume of this prism:**  **Draw the front elevation, side elevation and plan view of this shape:**  Front elevation  Side elevation  Plan view  **Reflect the triangle in the line $x = 5$**  	ABY is similar to YHV:  Calculate the value of x [Hint – draw the triangles separately next to each other first] An equilateral triangle is placed inside a rectangle. What is the shaded area?   What speed was the return journey?

Statistics and Probability

Recall

What is the highest **probability** you can get?

What might a **data collection sheet** also be known as?

Name 3 types of **frequency diagram**:

1)

2)

3)

What do you have to remember when drawing **bar charts**?

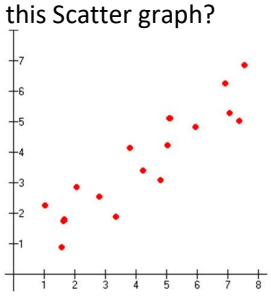
1)

2)

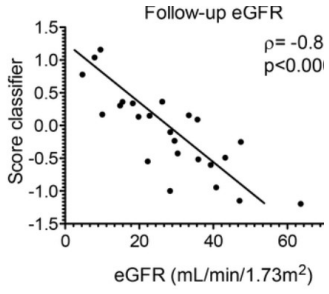
3)

What must the angles in a Pie Chart add up to?

What relationship is shown on this Scatter graph?



What do you call the line shown on this scatter graph?



What word in a scatter graph questions means you should use this line?

Apply

2-way tables:

90 people were asked what sport they preferred watching on TV.

23 of the 46 females preferred boxing.

50 of the 90 people surveyed preferred football.

	Football	Boxing	Total
Male			
Female			
Total			

What is the probability that a person picked at random is a male who preferred boxing?

If 270 people were surveyed, what would be an estimate for the number of people likely to prefer football?

Averages

Here is a set of data:

6, 9, 2, 5, 7, 8, 2, 6, 2, 10

What is the mean?

What is the mode?

What is the median?

What is the range?

Movie Ratings

4	7
5	2 6 9
6	1 4 6 8 8
7	0 3 5 9
8	1 3 5 6 8 8 9
9	0 0 1 3 4 6 6 9

Key: 6 | 1 represents 61

What is the range of movie ratings?

What is the median movie rating?

Thinking questions….

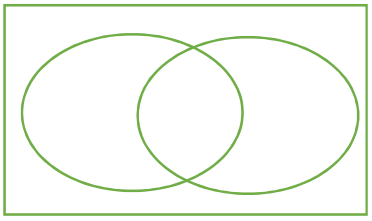
James asked 44 students what subjects they enjoyed.

13 said they enjoyed both English and Maths.

In total 35 said they enjoyed Maths.

4 said they didn't enjoy English or Maths.

Show this information in a Venn diagram:



How many in total said they enjoyed English?

What is the probability that a student chosen from the group only enjoyed Maths?

Six men are weighed at a competition. Their mean weight is 82 kg.

The weights of five of the men are: 68 kg, 79 kg, 105 kg, 81 kg and 72 kg.

What is the weight of the sixth man?

There are only red, blue, green and orange counters in a bag. The probability of choosing them is as follows:

Red	Blue	Green	Orange
$4x$	$3x$	0.5	0.25

What is the probability of choosing a blue counter?

	Recall	Apply	Thinking questions….
Number	What are the first 6 prime numbers? What are the first 6 square numbers? What are the first 6 cube numbers? List the first 5 multiples of 7 List all the factors of 12 Complete the table to show the equivalent fractions, decimals and percentages: What is the value of 8 in 582? What is the value of 7 in 435.78? What is the value of 8 in 435.78? What is the **product** of 6 and 3? What is the **difference** between 10 and 4? What is the **sum** of 14 and 5?	Find 10% of 240 Find $\frac{1}{7}$ of 42 Find $\frac{3}{7}$ of 42 Increase £360 by $\frac{1}{3}$ Decrease £24 by 15% A coat is reduced by 20% in a sale. During the sale it costs £56. What did it cost before the sale? What is the highest common factor of 48 and 64? What is the lowest common multiple of 12 and 15? Express 345 as a product of its prime factors	A TV normally costs £340. There is a 20% off deal on the TV.,  A speaker system normally costs £120. There is a $\frac{1}{4}$ off deal on the speaker system. Billy wants to buy 3 TVs and 4 speaker systems for an event he is holding. He has £1200. Does he have enough money? By how much?  T-shirts normally cost £12 each. Baggy Jeans inc. has an offer on: Buy 5 T-shirts get 2 free. What is the least amount you would pay for 30 T-shirts? How does this compare with buying 30 T-shirts at the normal price with a 15% discount applied?

Fraction	Decimal	Percentage
	0.4	
		25 %
$\frac{1}{2}$		
		3 %
$\frac{4}{5}$		
	0.75	