Averages and Range	
How do you work out the mean?	Add up all the numbers and divide by how many
How do you get the mode?	The most common number
How do you work out the median?	Order the numbers, then get the middle one
How do you work out the range?	Biggest minus smallest
How do you work out the mean for a frequency table?	1) Complete the "FX" column by multiplying midpoints and frequency 2) Add up the FX column 3) Divide by the total frequency
Percentages	
How do you get 50%	divide by 2 (or half)
How do you get 25%	divide by 4 (or half and half again)
How do you get 10%	divide by 10
How do you get 1%	divide by 100
How do you get 5%	divide by 10 to get 10% then half it
How do you get 20%	divide by 10 to get 10% then double it
How do you work out a percentage on a calculator?	Divide by 100 then times the percentage you want.
How do you work out percentage change (increase/decrease etc)	change divided by original times 100
Fractions	
Quarter of a number	divide by 4 (or half and half again)
Half of a number	divide by 2 (or half)
Third of a number	divide by 3
Fifth of a number	divide by 5
Three quarters of a number	divide by 4 then times by 3
How do you find any fraction of a number	divide by the bottom, times by the top
How do you simplify a fraction	Divide both the top and bottom of a fraction by the same number
How do you change a mixed fraction into a top-heavy fraction	1) Multiply the whole number by the denominator 2) Add on the numerator 3) Write that number above the original denominator
How do you change a top-heavy fraction into a mixed number	1) Divide the numerator by the denominator, that will give the whole number 2) Put the remainder above the original denominator
How do you multiply fractions?	Multiply the top numbers (numerators) and multiply the bottom numbers (denominators)

How do you divide by a fraction?	Flip over (reciprocal) the second fraction and then multiply them
How do you add fractions?	Make sure bottom numbers are the same by finding a common denominator, then add the top numbers
How do you subtract fractions?	Make sure bottom numbers are the same by finding a common denominator, then subtract the top numbers
What is a reciprocal?	It is what you get when you "flip over" a fraction. e.g. the reciprocal of 3/4 is 4/3. The reciprocal of 1/2 is 2. The reciprocal of 5 is 1/5
Types of Numbers	
What are the first 5 prime numbers	2, 3, 5, 7, 11
What are the square numbers up to 100?	1,4,9,16,25,36,49,64,81,100 etc
What are the first five multiples of a number, say 10 (any number under 10)	10, 20, 30, 40, 50
What are the factors of a number, say 10 (any number under 10)	1,2,5, 10 the numbers that divide exactly into 10
How do you square a number?	Times it by itself
How do you square root a number?	Its the number that times together to give you it. So the square root of a 100 is 10, because 10 x 10 is 100
What are the first 5 cube numbers?	1, 8, 27, 64, 125
What does integer mean?	whole number
What does consecutive mean?	Two numbers beside each other, like 42 and 43
How do you cube a number?	Times it by itself and by itself again, so 2 cubed would be 2 times 2 the times by 2 again
Angles	
What do the angles in a right angle add up to?	90
What do the angles in a straight line add up to?	180
What do the angles in a full circle add up to?	360
What do the angles in a triangle add up to?	180
What do the angles in a quadrilateral (4 sides) add up to?	360
What do the angles in a pentagon add up to	540

What do the angles in a hexagon add up to?	720 degrees
What is the name of an angle under 90 degrees?	acute
What is the name of an angle between 90 and 180 degrees?	obtuse
What is the name of the angle between 180 and 360 degrees?	reflex
What is the correct name for a z angle?	alternate
What is the correct name for a F angle	Corresponding
Area/Perimeter/Volume	
Area of a rectangle?	length times width
Area of a square?	Length times length
Area of a L shape?	Cut the shape into two, then work out the area of both rectangles
Area of a parallelogram?	Base times height
Area of a trapezium?	FRONT PAGE OF THE EXAM BOOKLET
Area of a circle?	pi r squared
Perimeter of a shape	Add up all the sides and if one is missing, work it out first
Circumference of a circle	pi times diameter
Area of a triangle?	Half base times height (or base times height divided by 2)
Volume of a cube?	length times length times length
Volume of a cuboid?	length times width times height
Volume of a triangular prism?	Area of the triangle at the front (half base times height) then times by the length
Volume of a cylinder?	Area of the circle (pi r squared) then times by the length
Parts of a Circle	
What is the diameter	The line passing through the centre of a circle joining both sides
What is the radius	The line from the centre to the edge of a circle
What is an arc?	Part of the circumference (part of the circle)
What is a chord?	A line across a circle, not through the centre
What is a tangent?	A line touching the outside of the circle
What is a sector?	A pizza slice shape

What is the circumference?	The distance around the outside of the circle
Units	
How many cm are in a metre?	100
How many grams in a kilogram?	1000
How many millimetres in a cm?	10
How many millilitres in a litre?	1000
How many metres in a kilometre?	1000
How many kilometres in a mile	1.6
Calculations	
What is BODMAS	Brackets, Order, Divide, Multiply, Add and subtract
How should you multiply large numbers	Using grid method
How do you divide?	Using bus shelter method
How do you multiply decimals?	1) multiply the numbers ignoring the decimals 2) Count how many digits are after the decimals in the question 3) Put the decimal point in the answer
How do you divide by a decimal?	Times both numbers by either 10, 100 or 1000 then divide as normal
Pythagoras	
Pythagoras' Theorem	$a^2 + b^2 = c^2$
When do you use Pythagoras?	To find a missing side of a right-angled triangle
Algebra	
How do you expand brackets	Multiply the inside by the number outside
What does factorise mean?	Put the brackets back in
What is a + a	2a
What is a x a	a^2
How would you solve 3x+1=16	1) Take 1 away from both sides 2) Divide both sides by 3
How do you solve an equation if it has letters on both side	Get rid of the lowest number of letters. So if you have 6x +1 = 4x +13 then subtract 4x from both sides.
What does ab mean?	a times b
If a = 6, what does 3a equal?	18
Ratio	
How do you simplify a ratio?	It is the same as simplifying fractions

How do you share a total by a given ratio?	1) Add the numbers in the ratio 2) Divide the total by the ratio 3) Times that number by the numbers in the ratio
If given a ratio and what one person gets, how do you find what the other person gets?	1) Divide what one person gets by their number in the ratio 2) Times that number by the other persons number in the ratio
Lines	
What does parallel mean?	The two lines never cross... like train tracks
What does perpendicular mean?	The two lines cross at 90 degrees ..... like the wall and the ground
Fractions Decimals Percentage	
How do you change a decimal to a percentage?	Times by 100
How do you change a percentage to a decimal?	Divide by 100
How do you change a percentage to a fraction?	Write the percentage over 100, then simplify
How do you change a fraction to a percentage?	A) If you can change the denominator to 100, do so and the percentage will be the numerator B) Divide the numerator by the denominator, then times 100. You will need to use the bus shelter method.
How do you change a fraction to a decimal?	Divide the numerator by the denominator, using the bus shelter method.
How do you change a decimal to a fraction?	If it is 0._ then write the number after decimal point over 10 If it is 0._ _ then write the number after decimal point over 100 If it is 0._ _ _ then write the number over 1000
Negatives	
Negative times Negative gives a	Positive
Negative times Positive gives a	Negative
Positive times Negative gives a	Negative
Negative divided by Negative	Positive
Positive divided by Negative	Negative
Negative divided by Positive	Negative
Charts/Graphs	
When drawing a bar chart, what is important?	Bars don't touch In pencil and with a ruler
What is important when drawing a stem and leaf	You include a key It is in order
Show me positive correlation	Arms pointing diagonally upwards

Show me negative correlation	Arms pointing diagonally downwards
How do you work out the angles for a pie chart?	1) Work out how many people there are in total (usually a number that goes into 360 such as 30, 60, 90, 180). 2) Divide 360 by the total to find out how many degrees each person gets 3) Times each category by that number
Probability	
What is the probability of getting a 4 on a dice?	1/6
If something is impossible, how do you write the probability	0
If I roll a dice 60 times, how many 4's do you expect?	10 (as there should be 10 for each number)
Graphs	
What does the y-axis look like?	arm moves up and down
x-axis?	arm moves side to side
y=x	arm moves diagonally
Where is the coordinate (5,2)	5 across, 2 up
Speed	
How do you work out speed?	Distance divided by time
How do you work out distance?	Speed times time
Sequences	
How do you find the 10th term in a sequence	Just carry on the sequence
How do you find the nth term?	1) See what the sequence is increasing by 2) Write that times tables beneath the sequence (also if it went up by 4, write 4n.) 3) See what you add or subtract from the times tables to get to the sequence and put it after the 4n
How do you work out the 50th term?	Use the nth term and put 50 instead of n
How do you work out if a number is in a sequence?	Write it equal to the nth term and solve the equation. If it is a whole number answer, it is in the sequence, if it is not a whole number, it isn't in the sequence
Symmetry	
How many lines of symmetry does a rectangle have?	2
How many lines of symmetry does a parallelogram have?	0

What is the order of rotational symmetry for a square	4
What is the order of rotational symmetry for a parallelogram	2
Shapes	
Name a shape with 5 sides	pentagon
Name a shape with 6 sides	hexagon
Name a shape with 7 sides	heptagon
Name a shape with 8 sides	octagon
What is the 3D shape similar to a football?	sphere
What is the 3D shape similar to a tent/toberlone bar?	triangular prism
Transformations	
What does tesselate mean?	a pattern where shapes repeat and fit together perfectly
how do you rotate an object?	1) get tracing paper 2) mark on the centre of rotation 3) trace the shape 4) rotate by the angle and direction 5) draw on the page
What is a perpendicular bisector	a line that cuts another line in half, at 90 degrees
What is an angle bisector	a line that cuts an angle in half