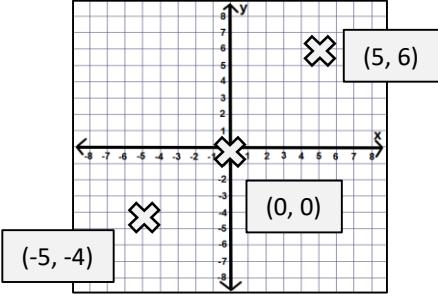
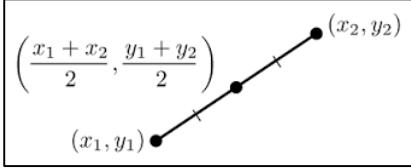
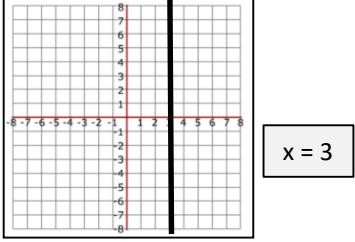
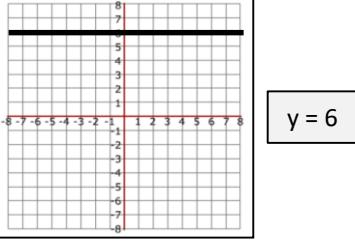
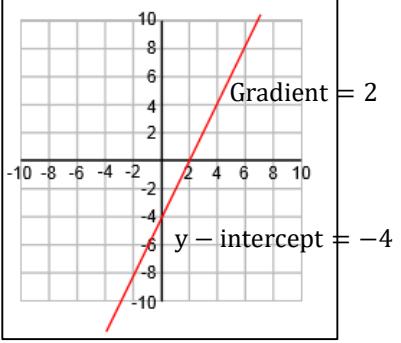
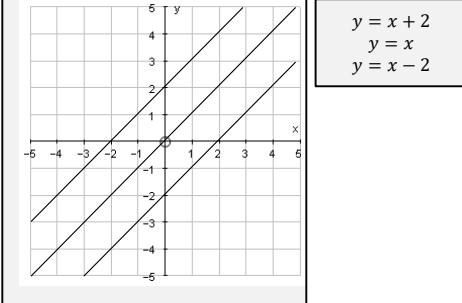
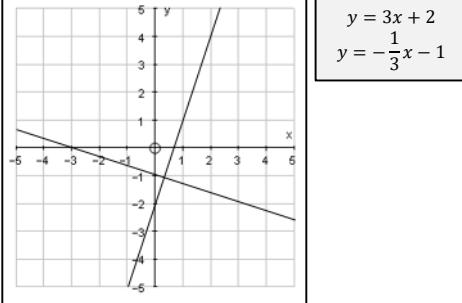


Unit 1 - coordinates			
No.	Question	Answer	Example
1.1	Coordinates are always	(x, y) "along the corridor and up the stairs"	
1.2	Midpoint of a line	$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$	

Unit 3 - proportion			
No.	Question	Answer	Example
3.1	Direct proportion	As one variable increases, the other variable increases	
3.2	Indirect proportion	As one variable increases, the other variable decreases	
3.3	The unitary method	Find one first	

Unit 4 – standard form			
No.	Question	Answer	Example
4.1	Standard form	A way of writing very big or very small numbers using powers of 10	4,000,000 is 4×10^6
4.2	10^{-3}	0.001	
4.3	10^{-2}	0.01	
4.4	10^{-1}	0.1	
4.5	10^0	1	
4.6	10^1	10	
4.7	10^2	100	
4.8	10^3	1000	

Unit 2 – $y = mx + c$			
No.	Question	Answer	Example
2.1	Vertical lines are always	$x = \dots$ where all the x coordinates are the same	
2.2	Horizontal lines are always	$y = \dots$ where all the y coordinates are the same	
2.3	m	Gradient	<i>Example: $y = 2x - 4$</i>
2.4	To find the gradient	"rise over run" $\frac{\text{Difference in } y}{\text{Difference in } x} = \frac{y_2 - y_1}{x_2 - x_1}$	
2.5	c	Y intercept	
2.6	To find the y-intercept	The y coordinate when $x = 0$ This is where the line crosses the y axis	
2.7	Parallel lines	Have the same gradient	
2.8	Perpendicular lines	$-\frac{1}{\text{gradient}}$	

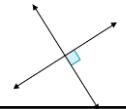
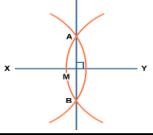
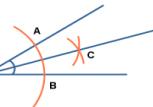
Unit 5 - sequences

No.	Question	Answer
5.1	Linear/arithmetic sequence	A number pattern which increases or decreases by the same amount each time
5.2	Common difference	The amount the sequence increases or decreases by between each term
5.3	Geometric sequence	A number pattern that uses multiplication between each term
5.4	Term	A number in a sequence
5.5	The nth term	The general rule for a number pattern
5.6	N	The term number in the sequence e.g. when n = 10, this is the 10 th term in the sequence
5.5	The first 10 square numbers are	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144
5.6	The first 5 cube numbers are	1, 8, 27, 64, 125

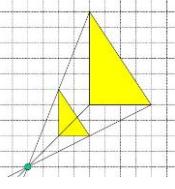
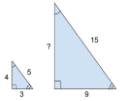
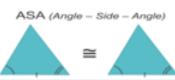
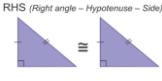
Unit 6 – expanding and factorising

No.	Question	Answer	Example
6.1	Like terms have what?	“SAME LETTER, SAME INDEX”	$2x^2$ and $4x^2$ $2x$ and $4x$
6.2	Simplify	Collect like terms	$2x + 4x = 6x$
6.3	Expand	Multiply everything inside the bracket by the term (or number) outside the bracket	$2(x + 4) = 2x + 8$
6.4	Factorise	Find a common factor of each term and put the brackets back in	$2x + 8 = 2(x + 4)$ $2x^2 + 4x = 2x(x + 4)$
6.5	Solve	Find the unknown letter	$2x + 1 = 7$ $2x = 6$ $x = 3$
6.6	Subject	The letter on its own one side of the equals sign	$a = 2b + c$ $a = \text{the subject}$
6.7	Rearrange	Make the given letter the subject	Make b the subject $a = 2b + c$ $\frac{a - c}{2} = b$ b is now the subject because it's on its own on one side of the equals sign

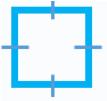
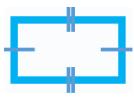
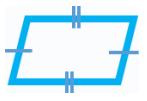
Unit 8 - constructions

No.	Question	Answer	Example
8.1	What does equidistant mean?	At equal distances	
8.2	What does perpendicular mean?	At right angles to	
8.3	What does bisector mean?	Cuts in half	
8.4	What is an angle bisector?	Cuts the angle in half	

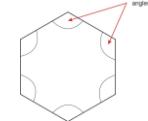
Unit 9 – similarity and congruence

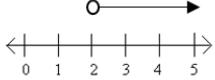
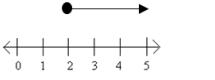
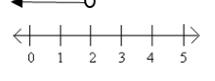
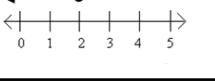
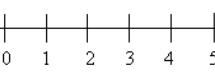
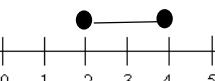
No.	Question	Answer	Example
9.1	What is enlargement?	Changes the size of the shape by a scale factor from a centre point	
9.2	What is the scale factor?	What all the sides are multiplied by to get the enlargement	
9.3	What are similar shapes?	Identical in shape, angles are the same but different in size, the ratio between sides is the same	
9.4	What are congruent shapes?	Identical in shape and size	
9.5	What are the four congruency rules?	SSS SAS ASA RHS	
9.6	SSS	Side, side, side (all sides are equal)	
9.7	SAS	Side, Angle, Side	
9.8	ASA	Angle, Side, Angle	
9.9	RHS	Right angle, Hypotenuse, Side	

Unit 10 – triangles and quadrilaterals

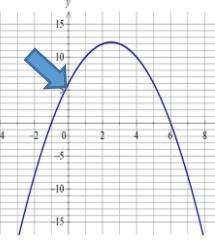
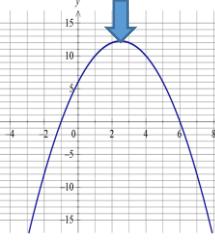
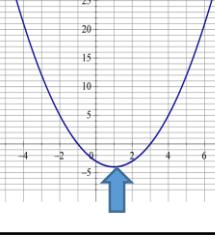
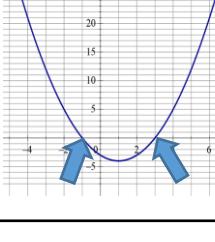
No.	Question	Answer	Example
10.1	What are the properties of an equilateral triangle?	All angles are the same size and all sides are the same length.	
10.2	What are the properties of a scalene triangle?	All angles are different sizes and all sides are different lengths.	
10.3	What are the properties of a right-angled triangle?	Contains one angle of 90°	
10.4	What are the properties of an isosceles triangle?	Has 2 sides of equal length and 2 angles of equal size	
10.5	What are the properties of a square?	<ol style="list-style-type: none"> All of its sides are the same length. All of its angles are equal (90°) It has 2 pairs of parallel sides 	
10.6	What are the properties of a rectangle?	<ol style="list-style-type: none"> Opposite sides are the same length All of its angles are equal (90°) It has 2 pairs of parallel sides 	
10.7	What are the properties of a rhombus?	<ol style="list-style-type: none"> All sides are the same length None of its angles are 90° It has 2 pairs of parallel sides 	
10.8	What are the properties of a parallelogram?	<ol style="list-style-type: none"> Opposite sides are the same length None of its angles are 90° It has 2 pairs of parallel sides 	
10.9	What are the properties of a kite?	<ol style="list-style-type: none"> Adjacent sides are the same length 1 pair of opposite angles are equal It has 0 pairs of parallel lines 	
10.10	What are the properties of a trapezium?	<ol style="list-style-type: none"> It has 1 pair of parallel lines In the special case of an isosceles trapezium it has 1 pair of opposite sides of equal length 	

Unit 11 - polygons

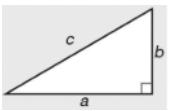
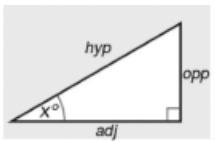
No.	Question	Answer	Example
11.1	Polygon	Any 2D shape formed with straight lines	
11.2	Regular polygon	A 2D shape formed with equal straight lines and equal interior angles	
11.3	Interior angles	The angles inside a polygon	
11.4	Sum of interior angles	(number of sides – 2) x 180°	
11.5	Exterior angles	The angles outside a polygon	
11.6	Exterior angles...	Sum to 360°	
11.7	Interior and exterior angles...	Sum to 180°	

Unit 12 - equations			
No.	Question	Answer	Example
12.1	What does solve mean?	Find the unknown	Solve to find x : $2x + 1 = 5$ $2x = 4$ $x = 2$
12.2	What is the unknown?	The letter in an equation	$2x + 1 = 5$ x is the unknown
12.3	What does expand mean?	Multiply out the bracket in the expression	$2(x + 5) = 2x + 10$
12.4	What does rearrange mean?	Make another letter the subject of the equation	Make x the subject $2x + y = z$ $2x = z - y$ $x = \frac{z - y}{2}$
12.5	What is the subject?	The letter of the equation which is on its own on one side	$x = \frac{z - y}{2}$ x is the subject
12.6	What is a linear equation?	An equation which forms a straight line on a graph	$2x + 5 = y$
12.7	What is a quadratic equation?	An equation containing a power which forms a curved line on a graph	$2x^2 + 5 = y$
12.8	>	Greater than	
12.9	<	Less than	
12.10	$x > 2$	x is greater than 2	
12.11	$x \geq 2$	x is greater than or equal to 2	
12.12	$x < 2$	x is less than 2	
12.13	$x \leq 2$	x is less than or equal to 2	
12.14	$2 < b < 4$	b is greater than 2 and smaller than 4	
12.15	$2 \leq b \leq 4$	b is greater than or equal to 2 and smaller than or equal to 4	

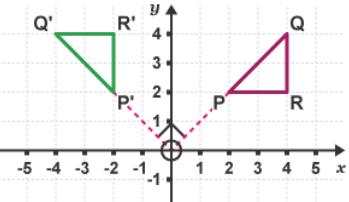
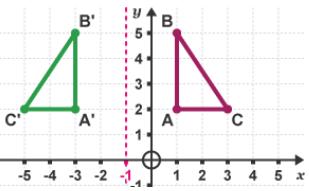
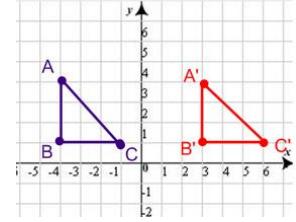
Unit 13 – simultaneous equations			
No.	Question	Answer	Example
13.1	What are simultaneous equations?	A pair of equations that have the same solutions for the unknown	$x + y = 10$ $2x + y = 14$

Unit 14 – quadratic graphs			
No.	Question	Answer	Example
14.1	What is the y intercept?	Where the graph crosses the y axis	
14.2	What is the maximum point?	The point of the graph where the gradient = 0 and changes from positive to negative	
14.3	What is the minimum point?	The point of the graph where the gradient = 0 and changes from negative to positive	
14.4	What are the roots?	Where the graph crosses the x axis (the solutions)	

Unit 15 – Pythagoras

No.	Question	Answer
15.1	What is Pythagoras Theorem? 	$a^2 + b^2 = c^2$ Used to find a missing side in right angled triangles when you know two sides
15.2	What is the hypotenuse?	Longest side in a right angled triangle (c)
15.3	What is trigonometry? 	Used to find missing sides or angles in right angled triangles
15.4	What is the sin θ ratio?	$\frac{opp}{hyp}$
15.5	What is the cos θ ratio?	$\frac{adj}{hyp}$
15.6	What is the tan θ ratio?	$\frac{opp}{adj}$
15.7	What is the value of sin 30?	$\frac{1}{2}$
15.8	What is the value of cos 60?	$\frac{1}{2}$
15.9	What is the value of tan 45?	1

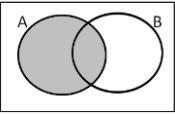
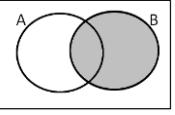
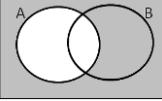
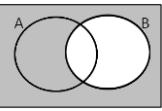
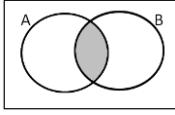
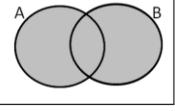
Unit 16 – transformations

No.	Question	Answer	Example
16.1	Rotation	Must include: <ul style="list-style-type: none"> Centre of rotation Direction Degrees 	<i>This shape has been rotated from centre (0,0) anti-clockwise 90°</i> 
16.2	Reflection	Must include: <ul style="list-style-type: none"> Line of symmetry 	<i>This shape has been reflected in the line $x = -1$</i> 
16.3	Translation	Must include: <ul style="list-style-type: none"> Vector e.g. $\begin{pmatrix} 2 \\ 5 \end{pmatrix}$ 2 right, 5 up $\begin{pmatrix} -2 \\ -5 \end{pmatrix}$ 2 left, 5 down	<i>This shape has been translated by vector $\begin{pmatrix} 7 \\ 0 \end{pmatrix}$</i> 
16.4	$\begin{pmatrix} a \\ b \end{pmatrix}$	a right, b up	
16.5	$\begin{pmatrix} -a \\ -b \end{pmatrix}$	a left, b down	

Unit 17 - proof

No.	Question	Answer
17.1	The four tests for congruence are	SSS ASA SAS RASH

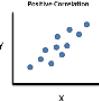
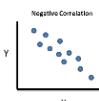
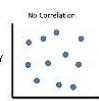
Unit 18 – probability

No.	Question	Answer
18.1	What is an outcome?	The result of an experiment
18.2	What is a sample space?	A table showing all the possible outcomes of an event
18.3	What is theoretical probability?	The expected outcome of an experiment
18.4	What is relative frequency?	The actual outcome of an experiment
18.5	What does mutually exclusive mean?	Two events that cannot happen at the same time
18.6	How do I write probability of A?	P(A) 
18.7	How do I write probability of B?	P(B) 
18.8	How do I write probability of not A?	P(A') 
18.9	How do I write probability of not B?	P(B') 
18.10	How do I write probability of A and B?	P(A ∩ B) 
18.11	How do I write probability of A or B?	P(A ∪ B) 

Unit 19 - data

No.	Question	Answer
19.1	What is quantitative data?	Data that can be counted or measured (<u>N</u> umbers)
19.2	What is qualitative data?	Information that describes something (<u>L</u> etters)
19.3	What is discrete data?	Data that can only take certain values e.g. number of chairs
19.4	What is continuous data?	Data that can take any value e.g. height
19.5	What is primary data?	Data that is collected first hand
19.6	What is secondary data?	Data that is collected by someone else
19.7	What is a sample?	A selection taken from a larger group
19.8	How do you calculate the mean?	Add up all the data sets Divide by how many pieces of data there are
19.9	How do you calculate mean from a frequency table?	$\frac{Total\ Fx}{Total\ F}$
19.10	How do you calculate mean from a grouped frequency table?	1. Find the mid point of each group 2. $\frac{Total\ Fx}{Total\ F}$

Unit 21 - correlation

No.	Question	Answer
21.1	What does positive correlation mean?	As one variable <u>increases</u> the other variable <u>increases</u> , this looks like: 
21.2	What does negative correlation mean?	As one variable <u>increases</u> the other variable <u>decreases</u> , this looks like: 
21.3	What does no correlation mean?	There is <u>no relationship</u> between the two variables, this looks like: 
21.4	What is a line of best fit?	A straight line drawn with a ruler that goes through the data with roughly the same number of points on each side of the line
21.5	What does interpolation mean?	Estimating a value within a given data set
21.6	What does extrapolation mean?	Estimating a value outside the give date set by assuming a trend