

Year 10 : Cycle 1: Mathematics – 100% sheet

Section 1: Expanding		Section 2: Pythagoras' Theorem	
Expand	Multiply terms inside a bracket by those outside the bracket.	Squaring	Multiplying a number by itself.
Simplify	Collect like terms so that the expression is in its simplest form	Square root	A number which produces a specified quantity when multiplied by itself.
Expanding a single bracket	Multiply each term in the bracket by the expression outside the bracket.	Pythagoras' Theorem	A relationship between the 3 sides on a right-angled triangle $a^2 + b^2 = c^2$
Expanding a double bracket	Multiply every term in the first bracket, by every term in the second bracket.	Hypotenuse	The longest side length of a right-angled triangle, opposite the right angle.
Co-efficient	A numerical or constant quantity placed before the variable		
Section 3: Pythagoras' Theorem		Section 4: Trigonometry	
line segment	A line joining two points.	Sin ratio	Opposite ÷ Hypotenuse
length of line segment	Distance between two points calculated using Pythagoras' theorem.	Cos ratio	Adjacent ÷ Hypotenuse
midpoint	The middle of the line segment.	Tan ratio	Opposite ÷ Adjacent
Pythagoras' Theorem	A relationship between the 3 sides on a right-angled triangle $a^2 + b^2 = c^2$	Inverse function of sin, cos, and tan	The inverse function of sin, cos and tan allows us to use the side lengths of the right-angled triangle to find a missing angle.
vertex	A point on a polygon where the sides or edges of the object meet	The value of sin(90) =	1
Section 5: Trigonometry – Exact trig values		Section 6: Reflections, translations, and rotations	
The value of sin(30)	= 1/2	Translation	Translate means to move a shape. The shape does not change (congruent). To translate a shape, you need a vector in the form.
The value of sin(0)	= 0	Reflection	Reflection means to flip a shape over a mirror line. The shape does not change (congruent). To reflect a shape, you need a mirror line.
The value of cos(0)	= 1	Rotation	To turn a shape. The shape does not change (congruent). To rotate a shape, you need a centre of rotation, the number of degrees to turn, and a direction of turn (clockwise or anticlockwise).
The value of cos(90)	= 0	Mirror line	A mirror line is a line which can be drawn onto a shape to show that both sides have exact reflective symmetry.
The value of tan (45)	= 1	Centre of rotation	The point around which you rotate an object.

Section 7: Enlargements		Section 8: Mixed transformations	
Enlargement	To change the size of a shape. The shape does change size (similar). To enlarge a shape, you need a centre of enlargement and a scale factor of enlargement.	Combined transformation	To complete two or more transformations and then describe the single transformation that has occurred from the original shape to the final shape.
Scale factor	The scale factor tells us how many times bigger (or smaller) the shape is.	Describe the transformation	Explain the details of the transformation from one shape to another.
Centre of enlargement	The starting point, the point from which the enlarged.	Co-ordinate	The exact point on a graph given in the form (x,y).
Similar shapes	Similar shapes are the same shape, but they have different sizes.	Mirror line	A mirror line is a line which can be drawn onto a shape to show that both sides have exact reflective symmetry.
Section 9: Experimental probability and probability of an event		Section 10: Mean, median, mode and range	
P(A) =	The probability of an event A.	Mean	Add up all the amounts, and then divide the total by the number of amounts.
P(A') =	The probability that event A will not occur = The complement of A.	Median	Put the data in numerical order and state the middle value.
P(A ∩ B) =	The probability that both events A and B will occur = the intersection.	Mode	The value which occurs the most.
P(A ∪ B) =	The probability that event A or B or both will occur = the union.	Range	The largest value subtracts the smallest value.
Experimental probability	The probability of an event happening based on an experiment or observation.	Comparing data	Compare averages to say who is better/faster. Compare ranges to say who is more consistent.
Section 11: Cumulative frequency and boxplots		Section 12: Compound measures	
Cumulative	Add up the values as you go.	Compound units	A measure made up of two other units . e.g. miles per hour includes miles and hours
Cumulative frequency table	A running total of frequencies displayed in a table.	Speed	How fast something is moving , the amount of time taken to travel a distance .
Boxplots	A simple way of representing statistical data on a plot in which a <u>rectangle</u> is drawn to represent the second and third <u>quartiles</u> , usually with a vertical line inside to indicate the median value.	Distance	A measurement of how far from one point to another .
IQR	Upper quartile – lower quartile.	Time	How to quantify the passing of events .
		Calculating speed	Speed = distance ÷ time
Section 13: Revision – Algebra instruction			
Solve	Find the value of an unknown or variable.		
Iterate	Repeatedly carry out a process.		
Rearrange	Changing the subject of a formula.		
Evaluate	In maths, this means find the value of .		
Form	To write or produce .		