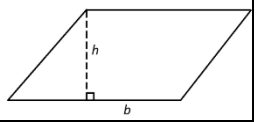
Year 8 Unit 3 Knowledge Organiser – Plotting and Interpreting Graphs Probability, Circles and Compound Areas

Co-ordinates and Graphs			
1	Axis	The 'x' and 'y' lines that cross at right angles.	
2	Co-ordinate	A pair of numbers that show an exact position. (x, y)	
3	$x\ co-ordinate$	Describes the movement left or right from (0,0). - moves left, + moves right	
4	$y\ co-ordinate$	Describes the movement up or down from (0,0). - moves down, + moves up	
5	Quadrant	The 4 areas made when we divide up a plane by an x and y axis.	
6	Plot	To draw a graph.	
7	Sketch	A drawing to show the general shape of a graph.	
Linear and Quadratic Graphs			
1	Straight line graphs	$y = mx + c$	m = gradient c = y intercept
2	Y intercept (c)	Where the line crosses the y axis.	
3	Gradient	The steepness of a line.	$\frac{Change\ in\ y}{Change\ in\ x}$ $= \frac{y_2 - y_1}{x_2 - x_1}$
4	Common straight line graphs	y = a	A horizontal line that cuts through the y axis at point *a.*
		x = a	A vertical line that cuts through the x axis at point *a.*
		y = x	A diagonal line that crosses through the origin where the values of x and y are the same.
		y = -x	A diagonal line that crosses through the origin where the x co-ordinate is multiplied by -1 to get the y co-ordinate.
20	Quadratic Graph	A curved graph.	
		$y = ax^2 + bx + c$	
		Positive ax^2	′ ∪′ shape
		Negative ax^2	′ ∩ ′ shape
Introducing Probability			
1	Probability	How likely it is an event will occur.	

2	Event	Something that has more than one outcome.
3	Outcome	A possible result of an event.
4	Probability Scale	A measurement of likelihood of an event happening between 0 and 1. 0----------0.5----------1 Impossible | Unlikely | Even | Likely | Certain
5	Dependant/ Conditional Event	The probability of and event is affected by the outcome of previous events.
6	Independent Event	The probability of an event is not affected by the outcome of previous events.
7	Theoretical Probability	$\frac{Number\ of\ desired\ outcomes}{Total\ number\ of\ possible\ outcomes}$
8	Experimental Probability	During an experiment $\frac{number\ of\ times\ the\ desired\ outcome\ was\ achieved}{total\ number\ of\ trials}$
9	Trial	A single performance within an experiment.
10	Mutually Exclusive	Events that cannot happen at the same time. Their probabilities add to 1.
11	Exhaustive	Events that include all possible outcomes.
12	Combined events	When two or more events happen.
13	AND rule	2 events BOTH happen. Multiply the probabilities.
14	OR rule	Either one event OR another happens. Add the probabilities.
Compound Area		
1	Perimeter	The distance around the outside of a shape.
2	Area	The space inside a shape.
3	Compound	A Shape made from two or more other shapes.
4	Area of a Parallelogram	$b \times h$ Base x perpendicular height 
Circles		
1	Pi (π)	A Greek letter used to represent the ratio of a circle's circumference to its diameter.

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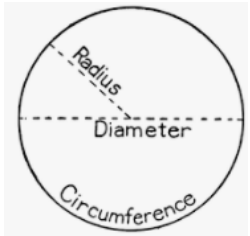
2	Radius (r)	The distance from the centre of a circle to its circumference.	
3	Diameter (d)	A straight-line from one point on the circumference to another point on the circumference passing through the centre.	
4	Area of a Circle	πr^2	
5	Circumference	πd	The distance around the perimeter of a circle.
6	Segment	A region that is created by the arc and a chord of a circle.	
7	Chord	A line segment joining to points on a circle's circumference.	
8	Tangent	A line that touches the circumference of a circle.	
9	Arc	Part of a circumference of a circle.	
10	Sector	The area between two radiuses and the connecting arc.	
11	Arc length	$\frac{\theta}{360} \times 2\pi r$	
12	Area of a sector	$\frac{\theta}{360} \times \pi r^2$	