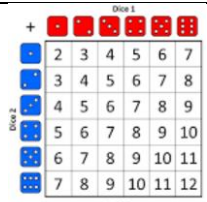
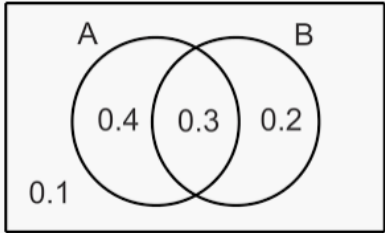
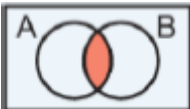
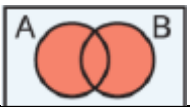
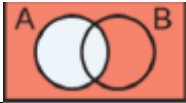

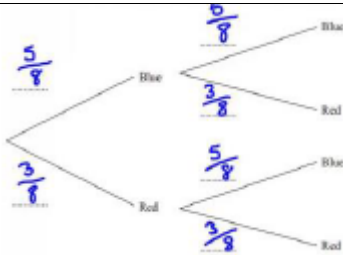

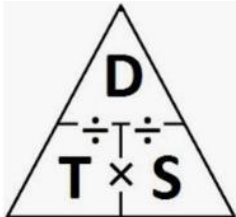
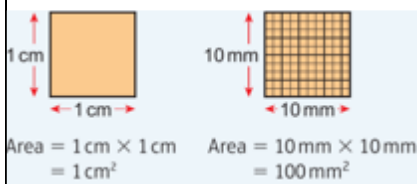
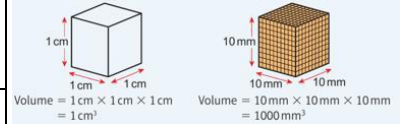
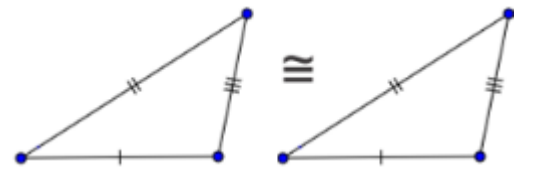


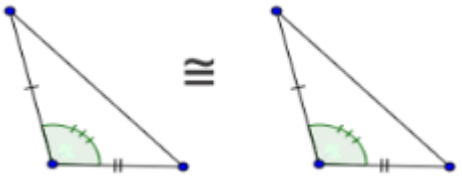
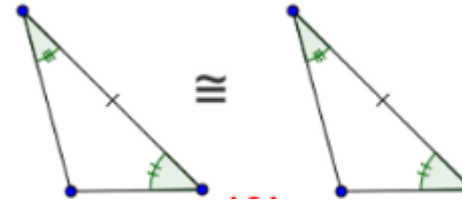

## Probability - definitions

1.	Probability	The extent to which an event is likely to occur	For equally likely outcomes the probability that an event will happen is $P = \frac{\text{number of successful outcomes}}{\text{total number of possible outcomes}}$
		Written as a fraction, decimal or percentage	
2.	Theoretical probability	Calculated without doing an experiment	
3.	Experimental probability	Probabilities based on the data collected during an experiment	$\text{estimated probability} = \frac{\text{frequency of event}}{\text{total frequency}}$
		Also known as estimated probability	
		The more trials you do the more reliable your set of results	
4.	P( ) notation	P( ) mean s the probability of the thing inside the brackets happening e.g. P(tails)	
5.	Experiment	A repeatable process that gives rise to a number of outcomes	
6.	Relative frequency	In an experiment, how often something happens as a proportion of the number of trials	$\text{Relative frequency} = \frac{\text{how often something happens}}{\text{all outcomes}}$
7.	Predictions	You can predict the number of outcomes you will get using relative frequency	
		Predicted number of outcomes = probability x number of trials	
8.	Event	A collection of one or more outcomes	
9.	Independent	When one event has no effect on another	Here P( A and B) = P(A) x P(B)
10.	Dependent	When the outcome of one event, changes the probability of the next event	
11.	Exhaustive	Events are exhaustive if they cover all possible outcomes	
12.	Biased	Unfair	
13.	Unbiased	Fair	
14.	Sample space	The set of all possible outcomes	
15.	Sample space diagram	A diagram showing all possible outcomes from an experiment	

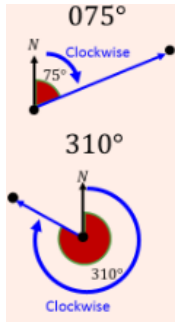
16.	Venn diagram	Can be used to represent events graphically		
		Frequencies or probabilities can be placed in the regions		
17.	$A \cap B$	A intersection B	All elements in A and B	
18.	$A \cup B$	A union B	All the elements in A OR B OR both	
19.	$A'$	Complement of A	Not in A	
20.	Mutually exclusive	Events that have no outcomes in common		 $P(A \text{ or } B) = P(A) + P(B)$
		Here $P(A \text{ or } B) = P(A) + P(B)$		
21.	Tree diagram	Used to show the outcomes of two (or more) events happening in succession		
22.	AND rule	Multiply the probabilities		
23.	OR rule	Add the probabilities		
Scale drawings and meaures				
24.	Clockwise	Following the direction of a clock		
25.	Anticlockwise	Following the opposite direction of a clock		

26.	Compass directions	Terminology needed to accurately describe a location or directions			
27.	Sketch	An approximate drawing of an object			
28.	Scale	A ratio that shows the relationship between a length on a drawing/map and the actual length			
29.	S.I. Units	Standard units of measurement used by scientists across the world			
30.	Metric units	Standard units of measurement that vary by powers of 10			
31.	Imperial units	Older units of measurement, some of which are still common e.g. miles, gallons			
32.	Velocity	Speed in a given direction			Usually measured in m/s
33.	Acceleration	The rate of change of velocity			Usually measured in m/s <sup>2</sup>
34.	Speed	The distance travelled in an amount of time			
		Usually measured in m/s, mph or km/h			
		$speed = \frac{distance}{time}$			
35.	Units of time	Standard units of time are seconds, minutes, hours, days, years			
		60 seconds = 1 minute	60 minutes = 1 hour	24 hours = 1 day	365 days = 1 year
36.	Units of mass	Metric units of mass are milligrams, grams, kilograms and tonnes			
		1000mg = 1g	1000g = 1kg	1000kg = 1 tonne	
37.	Units of length	Metric units of length are millimetres, centimetres, metres and kilometres			
		10mm = 1cm	100cm = 1m	1000m = 1km	
38.	Units of area	Metric units of length are millimetres <sup>2</sup> , centimetres <sup>2</sup> , metres <sup>2</sup> and kilometres <sup>2</sup>			
		1cm <sup>2</sup> = 100mm <sup>2</sup>			

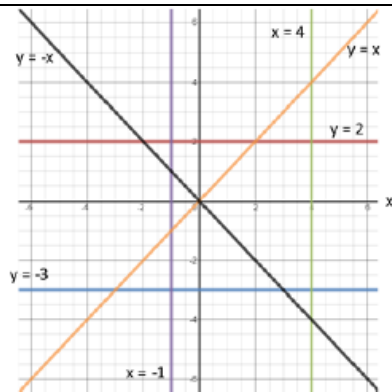
		$1\text{m}^2 = 1000\text{cm}^2$		
39.	Units of volume	Metric units of length are millimetres <sup>3</sup> , centimetres <sup>3</sup> , metres <sup>3</sup> and kilometres <sup>3</sup>		
		$1\text{cm}^3 = 1000\text{mm}^3$		
		$1\text{m}^3 = 1000000\text{cm}^3$		
40.	Units of capacity	Metric units of capacity are millilitres, centilitres and litres		
		$10\text{ml} = 1\text{cl}$	$1000\text{ml} = 100\text{cl} = 1\text{l}$	
41.	Capacity and volume conversions	$1\text{cm}^3 = 1\text{ml}$	$1000\text{cm}^3 = 1\text{l}$	
Similarity and Congruence in 2D				
42.	Congruent	Exactly the same shape and size		
43.	Similar	Two shapes where one is an enlargement of another		
		Corresponding angles are equal	Corresponding sides are in the same ratio	
44.	Scale factor	The proportion by which the dimensions of an object will increase or decrease by		
45.	Linear scale factor (LSF)	The scale factor/ratio of sides of two similar shapes	$LSF = \frac{\text{length from large shape}}{\text{length from small shape}}$	
46.	Area scale factor (ASF)	The scale factor ratio of areas/surface areas of two similar shapes	$ASF = \frac{\text{Area of large shape}}{\text{Area of small shape}}$	
47.	Volume scale factor (VSF)	The scale factor/ratio of volumes of two similar shapes	$VSF = \frac{\text{volume of large shape}}{\text{volume of small shape}}$	
Two triangles are congruent if...				
48.	SSS	All 3 sides are equal		

49.	SAS	2 sides and the included angle are equal	
50.	ASA	2 angles and the corresponding side are equal	
51.	RHS	The right angle, hypotenuse and one other side are equal	

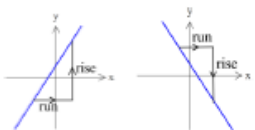
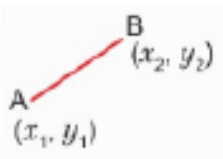
## Bearings

52.	Bearing	The direction of a line in relation to the North-South line	
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## Linear graphs

1.	Axis	A reference line on a graph		
2.	Axes	Plural of axis		
3.	Quadrant	A quarter of a graph separated by a axes		
4.	Coordinate	Used to show a position on a coordinate plane, (x, y)		
		First coordinate is the horizontal position, (x axis) and the second is the vertical position (y axis)		
5.	Origin	The point (0,0) on a set of axes		
6.	Plot	Mark a position or positions on a graph		
7.	y intercept	The y value where a graph crosses the y axis	where x=0	
8.	x intercept	The x value where a graph crosses the x axis	where y=0	
9.	Parallel	Lines that are equal distance apart that if extended will never meet		
10.	“y=” graph	Constant y coordinate		
		Will be parallel to the x axis		
11.	“x=” graph	Constant x coordinate		
		Will be parallel to the y axis		
12.	Linear function	An arithmetic sequence that can be represented by a straight line graph		
13.	Linear equation	An equation that produces a straight line graph		
14.	Equation of a line	$y = mx + c$ $m = \text{gradient}$ $c = \text{y intercept}$		

## Coordinate geometry

15.	Gradient	The steepness of a graph	 <p>This has a positive gradient      This has a negative gradient</p>
		$\text{Gradient} = \frac{\text{change in } y}{\text{change in } x}$ $= \frac{\text{rise}}{\text{run}}$	
16.	Gradient between two points	<p>If <math>A = (x_1, y_1)</math> and <math>B = (x_2, y_2)</math></p> <p>The gradient of line AB =</p> $\frac{y_2 - y_1}{x_2 - x_1}$	
17.	Parallel lines	Have the same gradients	
18.	Perpendicular	Lines that are at right angles to one another	<p>If a line has a gradient of <math>m</math>, the gradient of a line perpendicular to it will have a gradient of <math>-\frac{1}{m}</math></p>
		Lines that are perpendicular are the negative reciprocal of one another	
		If two lines are perpendicular, the product of their two gradients is -1	
19.	Mid-point	The coordinate half way between two point	<p>If <math>A = (x_1, y_1)</math> and <math>B = (x_2, y_2)</math></p> <p>the mid-point is <math>\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)</math></p>