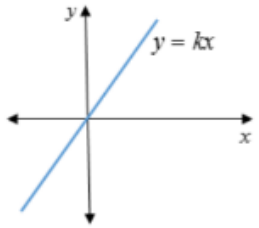
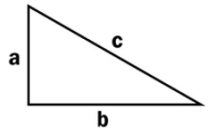
Year 10 Foundation Unit 3 KO – Ratio and Proportion, Pythagoras, and Trigonometry

Ratio and Proportion			
1	Ratio	Ratio compares a part of the whole to another part of the whole.	
2	Simplify a ratio	Divide both parts of a ratio by the highest common factor.	
3	Sharing a ratio	To divide a quantity by a given ratio.	
4	Proportion	Proportion compares the size of one part to the size of the whole.	
5	Direct Proportion	If two quantities are in direct proportion, as **<u>one increases</u>** the other **<u>increases at the same rate.</u>**	
6	Inverse Proportion	If two quantities are inversely proportional, as **<u>one increases</u>**, the other **<u>decreases at the same rate.</u>**	
7	Equation of direct proportion	$y \propto x$	$y = kx$
8	k	The constant of proportionality.	
9	Unitary method	To find the value of 1 unit.	
10	Currency	The monetary units used by different countries.	
11	Convert	To change a value from one unit of measure to another.	
12	Best Buy	The cheapest unit cost per one item.	

Pythagoras			
1	Pythagoras	Is used to find missing sides in right-angled triangles.	
2	Hypotenuse	The longest side of a right-angled triangle.	
3	Pythagoras Theorem	$a^2 + b^2 = c^2$ a – shorter side b – shorter side c – longest side/ hypotenuse	
4	Pythagorean triples	Three positive integers where $a^2 + b^2 = c^2$.	
5	Surd Form	Leaving the answer as a square root.	

Trigonometry			
1	Trigonometry	Is used to find missing sides and angles in right-angled triangles.	
2	Opposite	The side that is opposite to the angle of interest.	
3	Adjacent	The side between the angle of interest and right angle.	
4	Hypotenuse	The longest side of a right-angled triangle, opposite the right angle.	
5	Sine Ratio	The ratio of the length of the opposite side to that of the hypotenuse.	$sin\theta = \frac{O}{H}$
6	Cosine Ratio	The ratio of the length of the adjacent side to that of the hypotenuse.	$cos\theta = \frac{A}{H}$
7	Tan Ratio	The ratio of the length of the opposite side to that of the adjacent.	$tan\theta = \frac{O}{A}$
8	SOH CAH TOA	A mnemonic for remembering the definitions of the trigonometry ratios.	
9	Angle of Elevation	The ‘upwards’ angle from a horizontal line of sight.	
10	Angle of Depression	The ‘downwards’ angle from a horizontal line of sight.	
11	Theta ‘θ’	A Greek letter commonly used for an unknown angle.	

Exact Trigonometry Ratios			
1	Sinθ	0°	0
		30°	$\frac{1}{2}$
		45°	$\frac{1}{\sqrt{2}}$
		60°	$\frac{\sqrt{3}}{2}$

		90°	1
2	Cosθ	0°	1
		30°	$\frac{\sqrt{3}}{2}$
		45°	$\frac{1}{\sqrt{2}}$
		60°	$\frac{1}{2}$
		90°	0
3	Tanθ	0°	0
		30°	$\frac{1}{\sqrt{3}}$
		45°	1
		60°	$\sqrt{3}$
		90°	Undefined