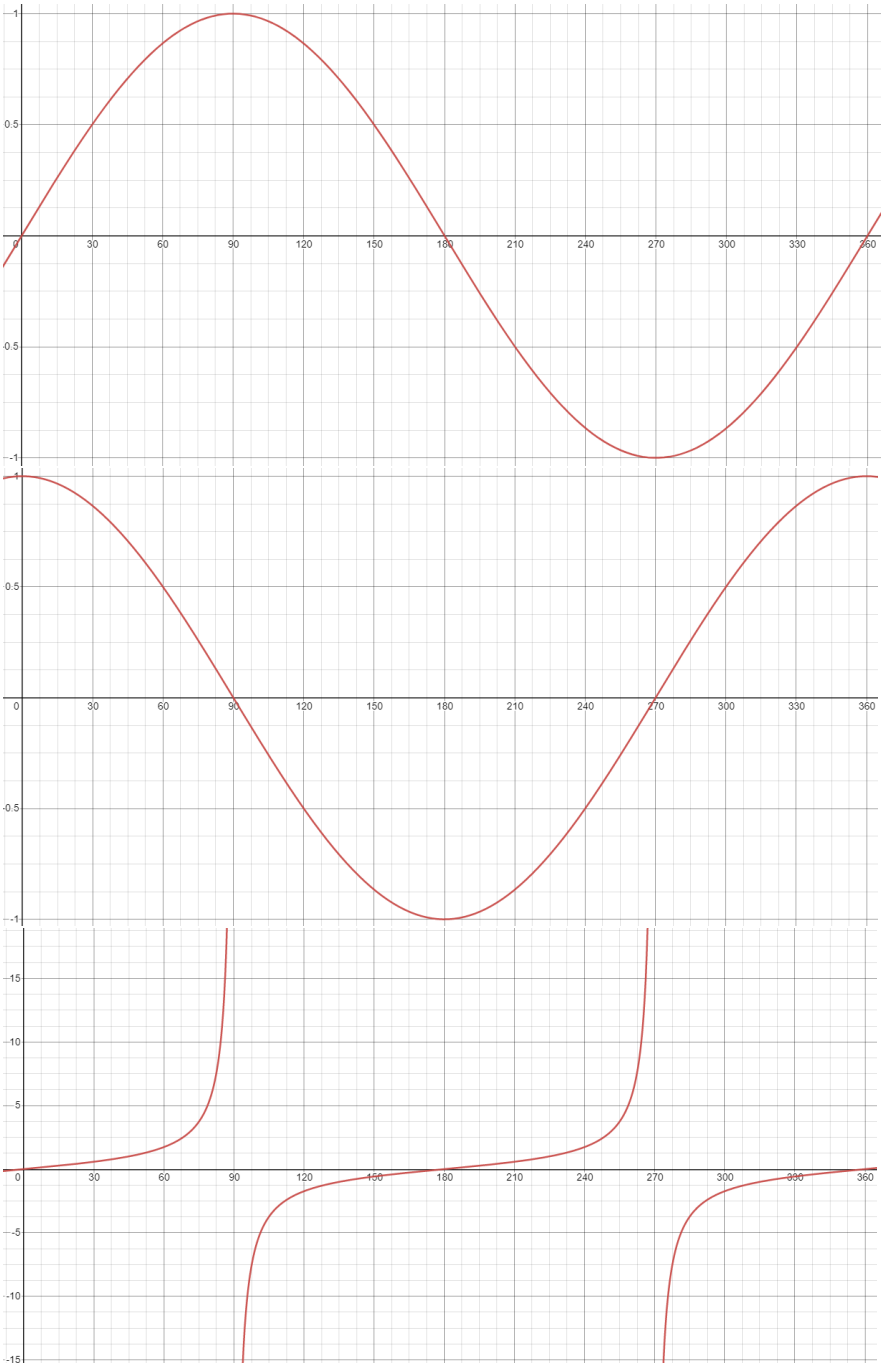
Y10 Maths Knowledge Organiser Higher Tier: Advanced Trigonometry

What must I be able to do?	Key vocabulary	
New content: ☐ Sketch graphs of y = sinx, y = cosx and y = tanx ➢ Sparx B358 ☐ Use trigonometric graphs to find solutions between 0 and 360° ☐ Know and use the Sine rule ➢ Sparx U952 ☐ Know and use the Cosine rule ➢ Sparx U591 ☐ Find the area of a triangle if you know two sides and the angle between ➢ Sparx U592	**Periodic**	A graph which repeats itself over and over at regular intervals.
	Asymptote	A line which a graph gets closer and closer to but does not touch or cross.

Trigonometric graphs



y = sin x Periodic every 360°

Key coordinates:

(0, 0)

(90, 1)

(180, 0)

(270, - 1)

(360, 0)

y = cos x Periodic every 360°

Key coordinates:

(0, 1)

(90, 0)

(180, - 1)

(270, 0)

(360, 1)

y = tan x Periodic every 180°

Key coordinates:

(0, 0)

x = 90 is an asymptote

(180, 0)

x = 270 is an asymptote

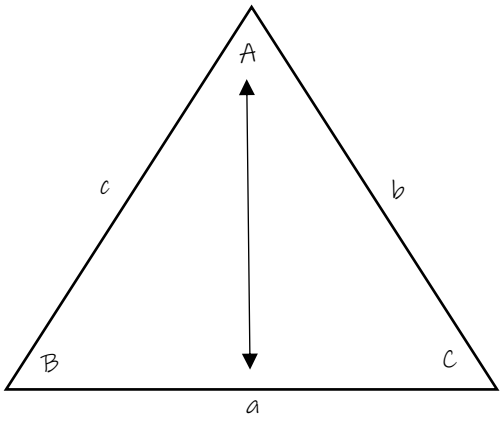
(360, 0)

Labelling a non-rightangled triangle

Capital letters are used for the 3 angles

Lower case letters for the 3 sides

Letters of the same type are opposite each other



Sine rule

Used when you know 3 out of these 4 things and need to find the 4th: 2 angles and the 2 sides opposite those angles.

Formula: $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ **or** $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Best used when wanting to find a missing side

Best used when wanting to find a missing angle

Cosine rule

Used when you know 3 out of these 4 things and want to find the 4th: 3 sides and one angle.

Formula: $a^2 = b^2 + c^2 - 2bc\cos A$ **or** $\cos A = \frac{b^2 + c^2 - a^2}{2bc}$

Used to find a missing side. Can be altered to allow you to find "b" or "c" instead.

Note: "2bc cosA" is 2 × b × c × cosA

Used to find a missing angle. Can be altered to allow you to find "B" or "C" instead.

Note: Don't forget to do $\cos^{-1}$ to find your actual angle at the end.

Area of a triangle

Used when you know 2 sides and the angle between.

Formula: Area of triangle = ½ ab sinC

Note: This means ½ × b × c × sinA

GLUE

HERE