

My mathematical journey

What do I need to remember from before?

- Powers and roots (NP4)
- Substitution and rearranging a formulae (A5)
- Angles in triangles (GM2)
- Similarity (GM4)

What will I learn about in this unit?

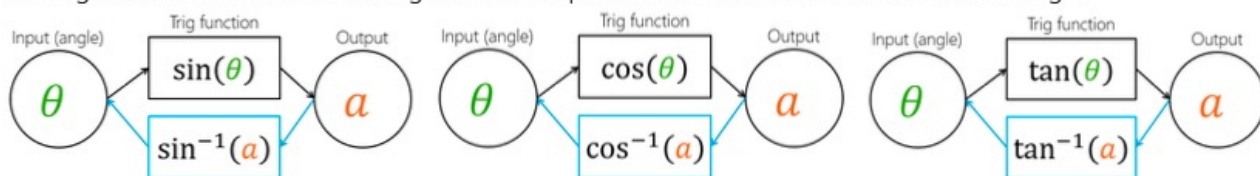
- Pythagoras' Theorem
- Trigonometry in right-angled triangles
- Exact values in surd form

Where does this lead?

- Advanced length and area (GM9)
- Trigonometric graphs (A13)
- A Level mathematics, physics, engineering and more

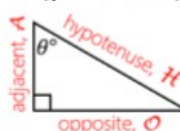
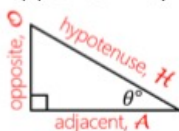
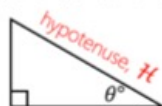
Key words and symbols: what I need to say and write accurately

The trigonometric functions have angles as their input. Their inverse functions are written using ⁻¹.



The **hypotenuse** is the longest side in a right-angled triangle, opposite the right angle.

The other two sides are called the **adjacent** and **opposite**. They change depending on the angle you look at.

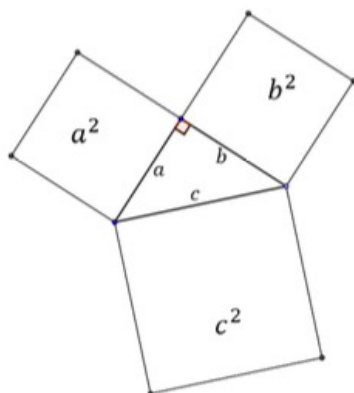


Fingertip facts: what I need to learn by heart

Pythagoras' Theorem

For any right-angled triangle,

$$a^2 + b^2 = c^2.$$



Trigonometry

Three equations:

$$\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}} \quad \cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}} \quad \tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$$

A mnemonic to help you remember the equations:

S^OH C^AH T^OA

The exact values of sine, cosine and tangent for key angles:

Angle, θ	30°	45°	60°
$\sin \theta$	$\frac{\sqrt{1}}{2} = \frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$
$\cos \theta$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{1}}{2} = \frac{1}{2}$
$\tan \theta$	$\frac{1}{\sqrt{3}}$	1	$\frac{\sqrt{3}}{1} = \sqrt{3}$