A right-angle triangle is a triangle whose side lengths follow Pythagoras's Theorem and one of the internal angles is 90° (or $\frac{\pi}{2}$ radians).

- Hypotenuse: the longest side/ the side that is opposite the right angle. This term is only used for right angle triangles.

- Opposite side: the side that is opposite whichever angle we are interested in. When referring to right-angle triangles, we do not label the hypotenuse as an 'opposite' side.

- Adjacent side: one of the sides that meet to make the angle we are interested in. When referring to right-angle triangles, we do not label the hypotenuse as an 'adjacent' side.

Trigonometric ratios (SOHCAHTOA)

We can also deduce information about the angles in a right-angle triangle from their side lengths, and vice versa. We do this using the three trigonometric ratios:

$$\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$$

Each of these trigonometric functions has an 'inverse' (ie a function that you can apply to them to give you a value for θ). These are $\sin^{-1}$, $\cos^{-1}$ and $\tan^{-1}$, and are read as either 'sine to the minus one' or 'arc sine'. You can find these on a calculator (usually by pressing the shift key, and then the sin, cos or tan button).

Answering a right-angle trigonometry question

1. Identify the side lengths given.
2. Choose the ratio that combines those sides.
3. Calculate the angle or side using a calculator.

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