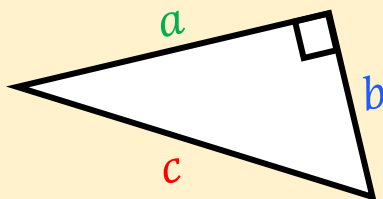




GCSE Trigonometry

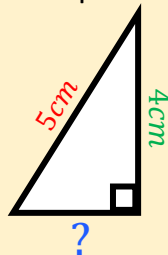


Pythagoras Theorem



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

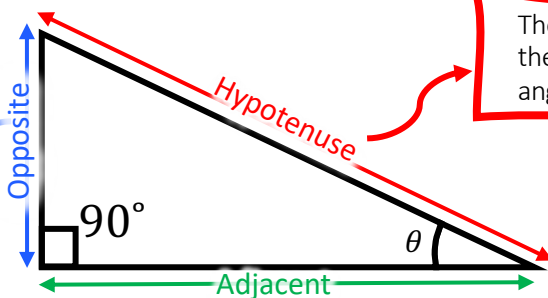
Example!



$$\begin{aligned} a^2 + b^2 &= c^2 \\ b^2 &= c^2 - a^2 \\ b^2 &= 5^2 - 4^2 \\ b^2 &= 9 \\ b &= 3\text{cm} \end{aligned}$$

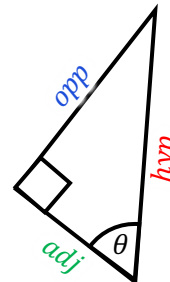
SOH CAH TOA

The side that is perpendicular to the adjacent, and opposite to the angle θ .



The hypotenuse is the longest side, and the side that is opposite to the right angle.

The side that is adjacent to the angle θ .
The adjacent is between the angle θ and the right angle.



$$\theta = \sin^{-1} \left(\frac{\text{opposite}}{\text{hypotenuse}} \right)$$

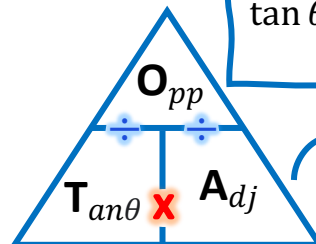
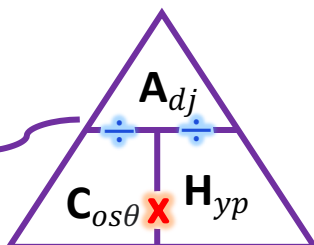
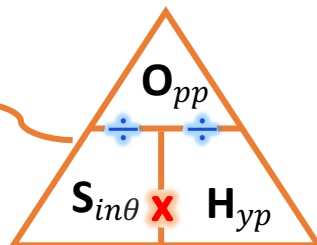
$$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$$

$$\theta = \tan^{-1} \left(\frac{\text{opposite}}{\text{adjacent}} \right)$$

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

$$\theta = \cos^{-1} \left(\frac{\text{adjacent}}{\text{hypotenuse}} \right)$$

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



Sine Rule

For side lengths...

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

For angles...

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

Cosine Rule

For side lengths...

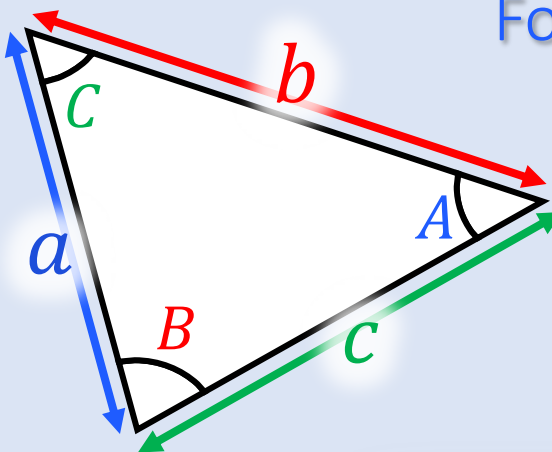
$$a^2 = b^2 + c^2 - 2bc \cos A$$

For angles...

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

Non-Right Angled Triangles

For Higher Tier Only



Area of a triangle with sine

$$\text{Area} = \frac{1}{2} ab \sin C$$

Learn more at

www.youtube.com/c/AddvanceMaths

<https://addvancemaths.com/revision/trig/>

