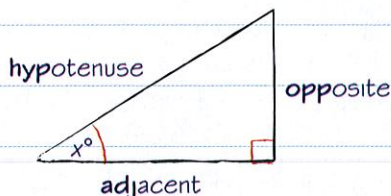


Trigonometry 1

You can use the trigonometric ratios to find the size of an angle in a right-angled triangle. You need to know the lengths of two sides of the triangle.



The sides of the triangle are labelled relative to the ANGLE you need to find.

Trigonometric ratios

$$\sin x^\circ = \frac{\text{opp}}{\text{hyp}} \text{ (remember this as } S^O_H\text{)}$$

$$\cos x^\circ = \frac{\text{adj}}{\text{hyp}} \text{ (remember this as } C^A_H\text{)}$$

$$\tan x^\circ = \frac{\text{opp}}{\text{adj}} \text{ (remember this as } T^O_A\text{)}$$

You can use $S^O_H C^A_H T^O_A$ to remember these rules for trig ratios.

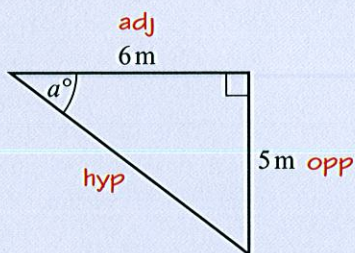
These rules only work for RIGHT-ANGLED triangles.

Worked example

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Calculate the size of angle a in this right-angled triangle.

Give your answer correct to 3 significant figures.



$$\tan a^\circ = \frac{\text{opp}}{\text{adj}} = \frac{5}{6}$$

$$a^\circ = 39.805\ 571\ 09 = 39.8^\circ \text{ (to 3 s.f.)}$$

Label the **hypotenuse** first – it's the longest side.

Then label the side **adjacent** to the angle you want to work out.

Finally label the side **opposite** the angle you want to work out.

Remember $S^O_H C^A_H T^O_A$. You know **opp** and **adj** here so use T^O_A .

Do **not** 'divide by tan' to get a on its own. You need to use the \tan^{-1} function on your calculator.

$$\tan^{-1}\left(\frac{5}{6}\right)$$

39.80557109

Write down all the figures on your calculator display then round your answer.

Using your calculator

To find a missing angle using trigonometry you have to use one of these functions.

$$\sin^{-1} \quad \cos^{-1} \quad \tan^{-1}$$

These are called INVERSE TRIGONOMETRIC functions. They are the inverse operations of \sin , \cos and \tan .

Make sure that your calculator is in degree mode. Look for the **D** symbol at the top of the display.

Now try this

Work out the value of x .

Give your answer correct to 1 decimal place.
(3 marks)

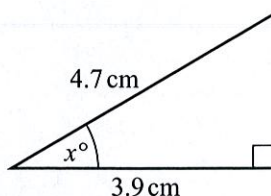


Diagram **NOT** accurately drawn

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