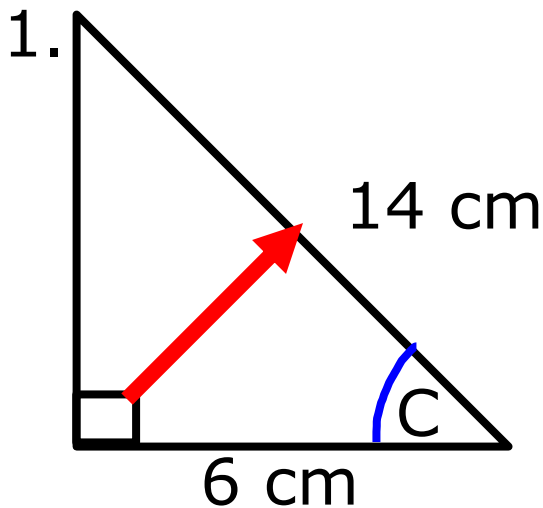


# Finding an angle from a triangle

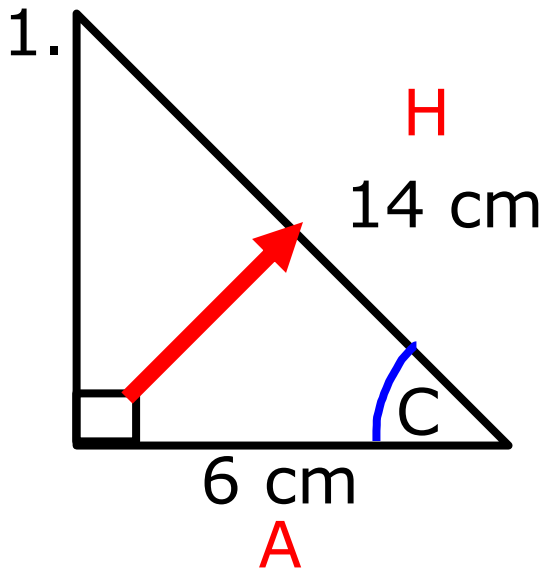
To find a missing angle from a right-angled triangle we need to know two of the sides of the triangle.

We can then choose the appropriate ratio, sin, cos or tan and use the calculator to identify the angle from the decimal value of the ratio.



Find angle C

- Identify/label the names of the sides.
- Choose the ratio that contains BOTH of the letters.



We have been given the adjacent and hypotenuse so we use COSINE:

$$\text{Cos } A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{Cos } A = \frac{a}{h}$$

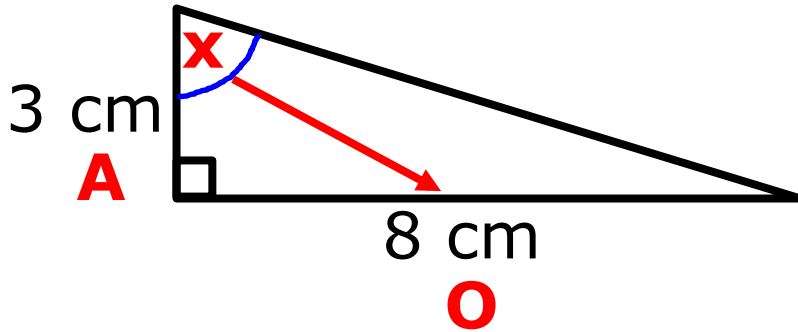
$$\text{Cos } C = \frac{6}{14}$$

$$\text{Cos } C = 0.4286$$

$$C = \cos^{-1} (0.4286)$$

$$C = 64.6^\circ$$

2. Find angle x



Given adj and opp  
need to use tan:

$$\text{Tan } A = \frac{\text{opposite}}{\text{adjacent}}$$

$$\text{Tan } A = \frac{0}{a}$$

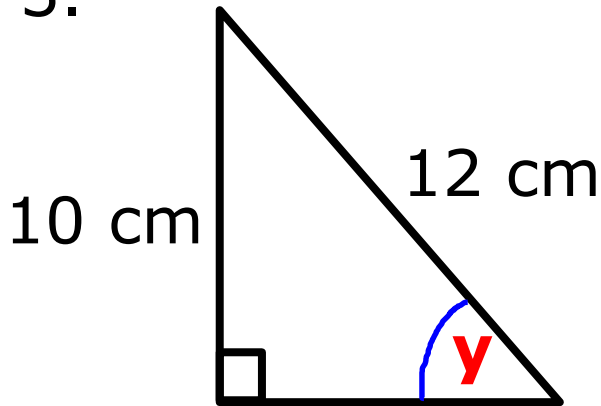
$$\text{Tan } x = \frac{8}{3}$$

$$\text{Tan } x = 2.6667$$

$$x = \tan^{-1} (2.6667)$$

$$x = 69.4^\circ$$

3.



Given opp and hyp  
need to use sin:

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

$$\sin A = \frac{o}{h}$$

$$\sin x = \frac{10}{12}$$

$$\sin x = 0.8333$$

$$x = \sin^{-1} (0.8333)$$

$$x = 56.4^\circ$$

# Finding a side from a triangle

To find a missing side from a right-angled triangle we need to know one angle and one other side.

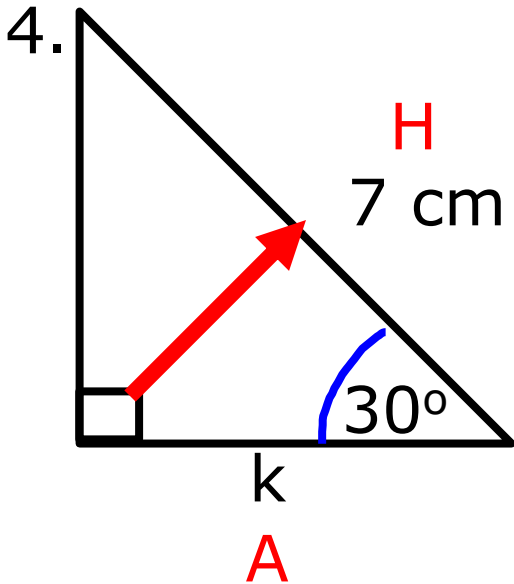
Note: If

$$\cos 45 = \frac{x}{13}$$

To leave  $x$  on its own we need to move the  $\div 13$ .

It becomes a "times" when it moves.

$$\cos 45 \times 13 = x$$



We have been given the adj and hyp so we use COSINE:

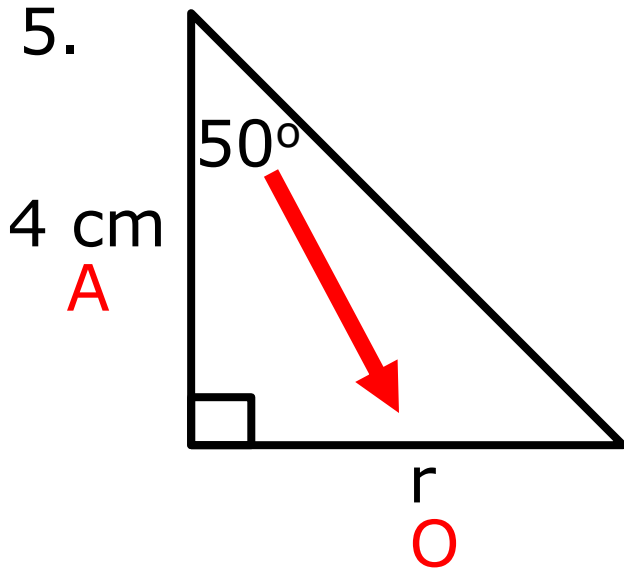
$$\text{Cos } A = \frac{\text{adjacent}}{\text{hypotenuse}}$$

$$\text{Cos } A = \frac{a}{h}$$

$$\text{Cos } 30 = \frac{k}{7}$$

$$\text{Cos } 30 \times 7 = k$$

$$6.1 \text{ cm} = k$$



We have been given the opp and adj so we use TAN:

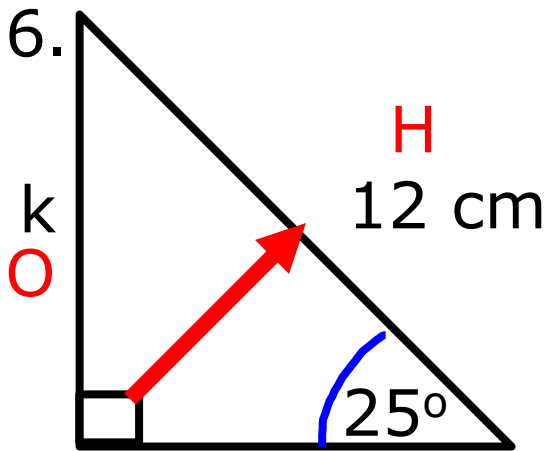
$$\text{Tan } A = \frac{\text{opposite}}{\text{adjacent}}$$

$$\text{Tan } A = \frac{O}{a}$$

$$\text{Tan } 50 = \frac{r}{4}$$

$$\text{Tan } 50 \times 4 = r$$

$$4.8 \text{ cm} = r$$



We have been given the opp and hyp so we use SINE:

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

$$\sin A = \frac{o}{h}$$

$$\sin 25 = \frac{k}{12}$$

$$\sin 25 \times 12 = k$$

$$5.1 \text{ cm} = k$$