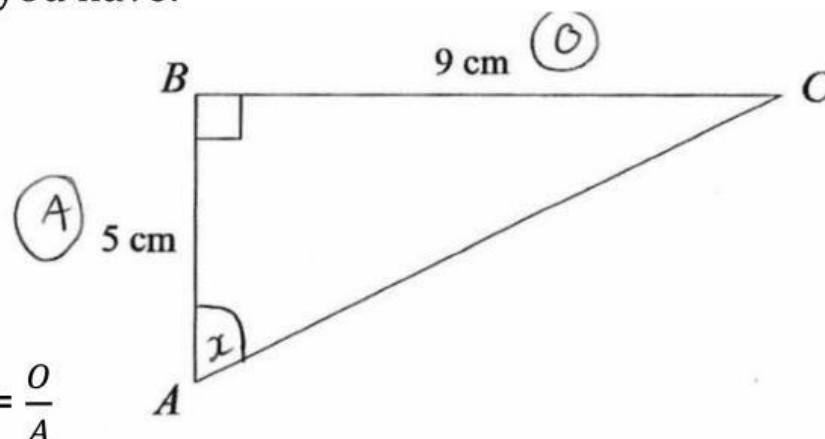


Trigonometry with right-angled triangles: SOH CAH TOA

Notes:

- Sometimes questions may mention something like $\angle PQR$:
 - This just means the angle found between lines PQ and QR
 - Essentially the angle at point Q because it is the middle letter in the 3 letters.
- Remember that if your unknown is an angle which you need to find, then you use the inverse trig function:
 - Eg if you have:



$$\tan(x) = \frac{O}{A}$$

1. functions have inputs and outputs
2. tan is a function
3. the input is x, so that $\tan(\text{input}) = \text{output}$
4. the output is $\frac{O}{A}$
5. To inverse, simply swap the inputs and outputs,

$$\text{So } \tan(x) = \frac{O}{A} \rightarrow \tan^{-1}\left(\frac{O}{A}\right) = x,$$

hence 

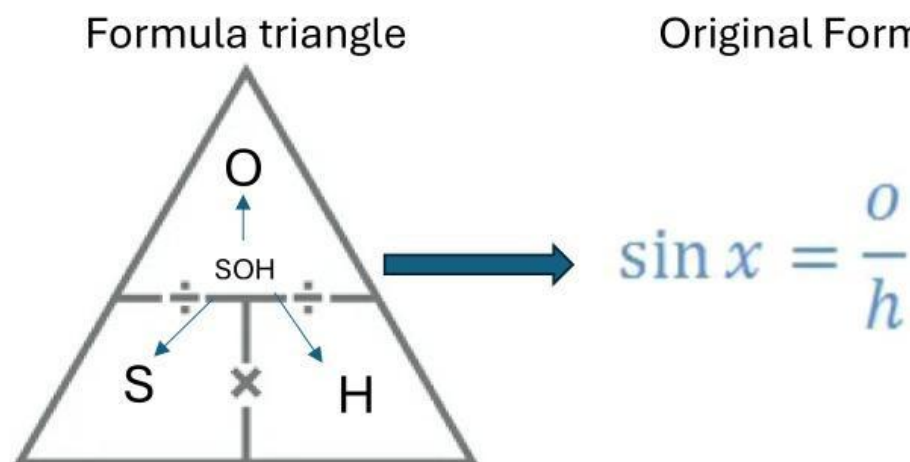
Calculate the size of angle BAC.

$$\tan x = \frac{9}{5}$$

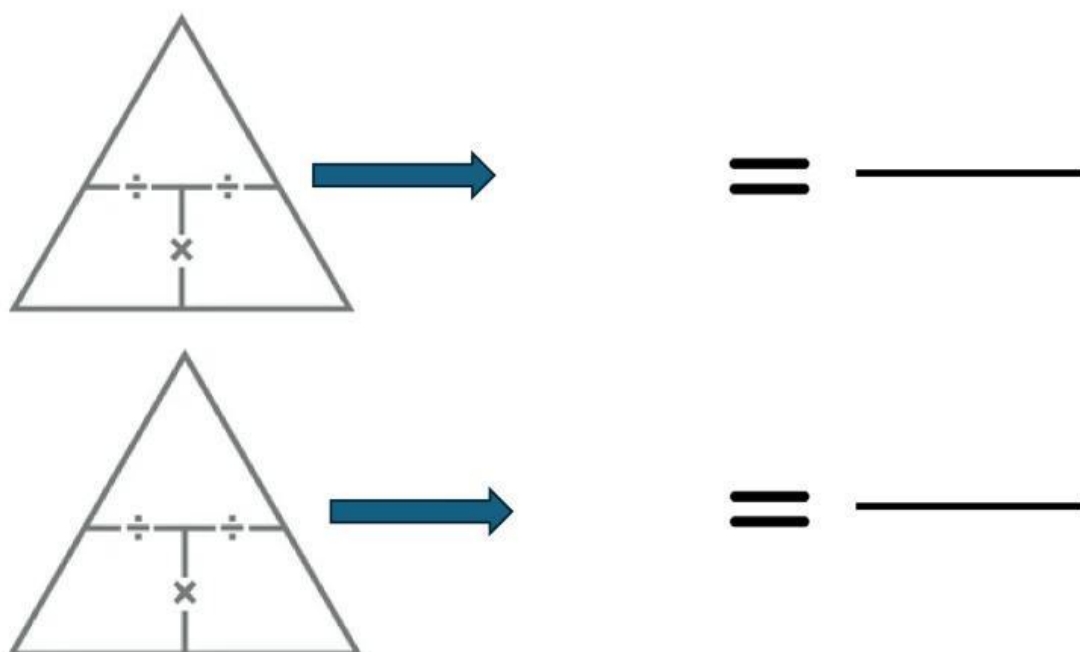
$$x = \tan^{-1}\left(\frac{9}{5}\right)$$

$$= 60.9 \text{ (1dp)}$$

- You can use the above phrase (SOH CAH TOA) to come up with the trigonometry formulae pyramids: The middle letter always goes on the top, and the left and right letters act as the base
- So:

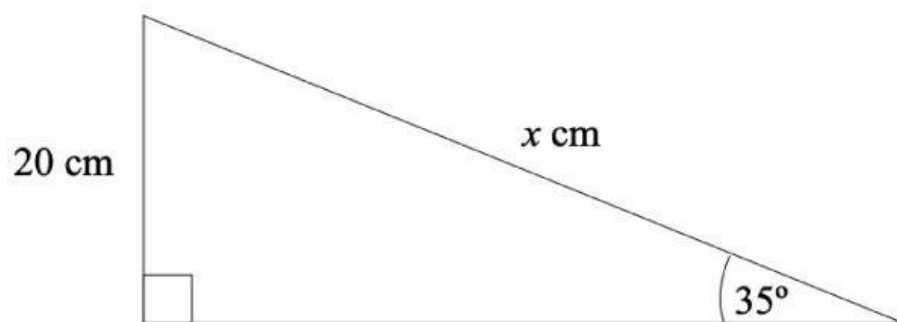


1. Hence, draw the remaining two formula pyramids, as well as the original formula:



tan(x)	cos(x)	O	H	A	A
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2.

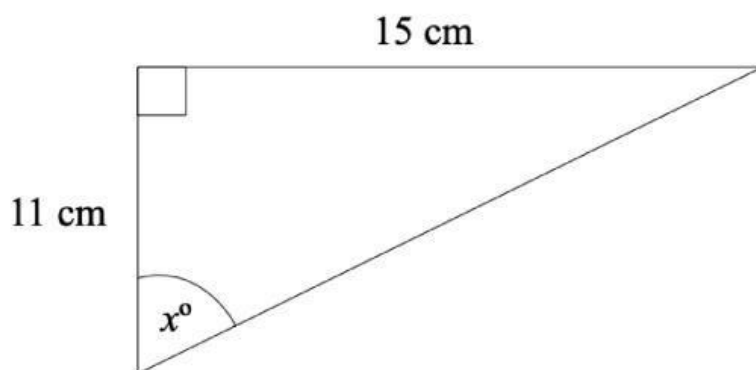


Work out the value of x .

(2 marks)

$x =$ _____ cm

3.

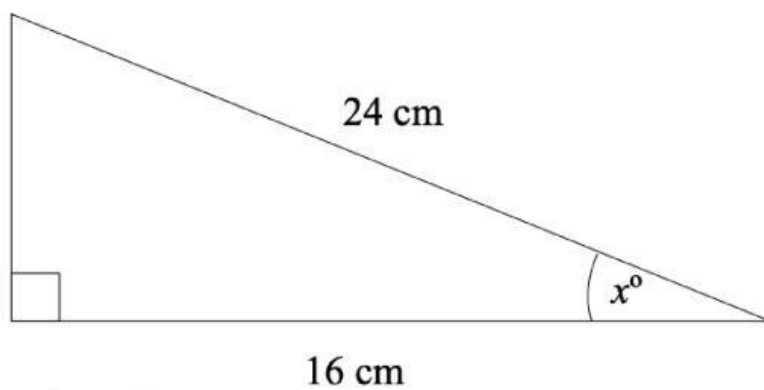


Work out the value of x .

(2 marks)

$x =$ _____ $^\circ$

4.

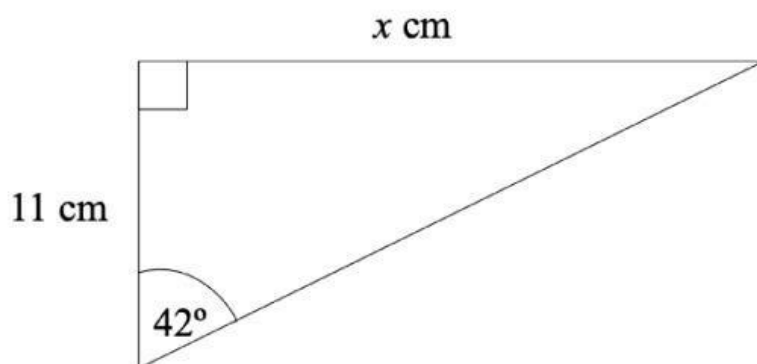


Work out the value of x .

(2 marks)

$x =$ _____ $^\circ$

5.

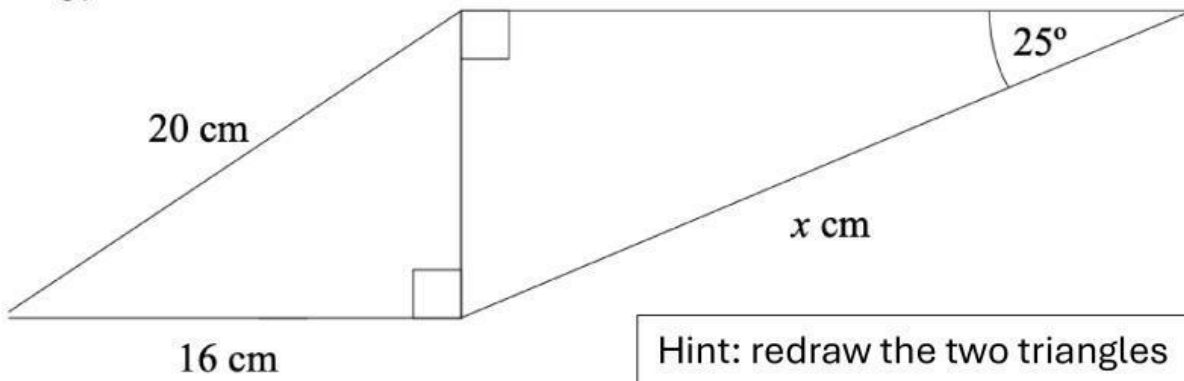


Work out the value of x .

(2 marks)

$x =$ _____ cm

6.



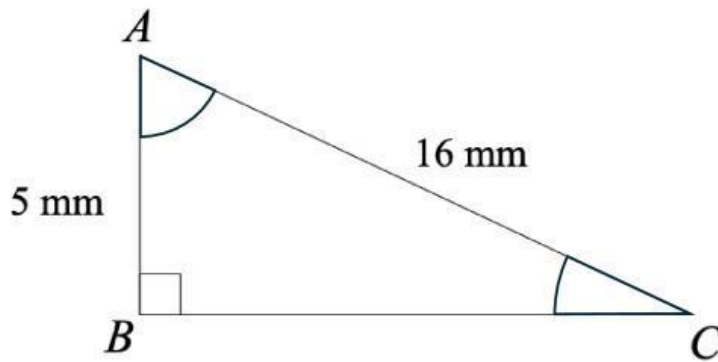
Hint: redraw the two triangles separately and note down the side that they both have in common

Work out the value of x .
Give your answer to 1 decimal place.

(4 marks)

$x =$ _____ cm

7.



- a) Identify where angle BAC is on the diagram, and drag and drop the following theta symbol into the correct corner of the triangle above:

θ

- b) Now find $\angle BAC$:

$\angle BAC = \underline{\hspace{2cm}}^\circ$