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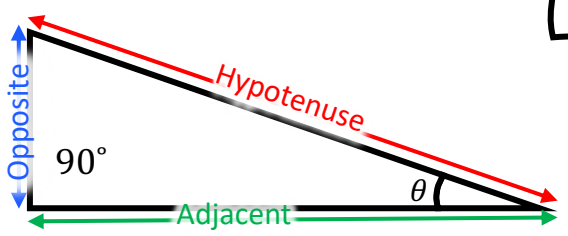
Trigonometry

Choosing the right method

Start: Is the question a right-angled triangle?



Yes

Does the question involve another angle?

Yes

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

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

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

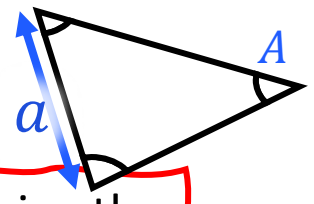
SOHCAHTOA

No

Pythagoras theorem

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

No



Does the question already give the measures of a side and its opposite angle?

Yes

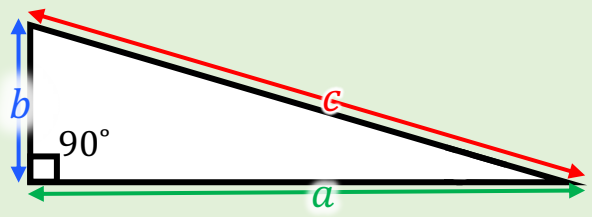
Sine rule

No

Cosine rule

Labelling a triangle

For Pythagoras Theorem



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...

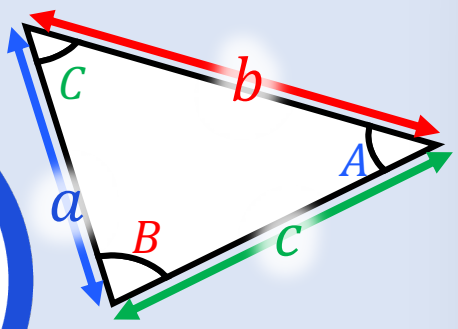
$$a^2 = b^2 + c^2 - 2b\cos A$$

For angles...

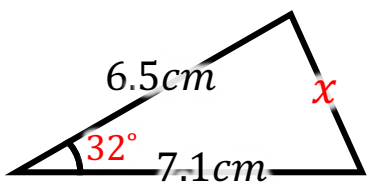
$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

Labelling a non-right angle triangle

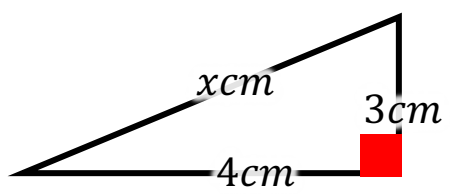
For sine and cosine rules



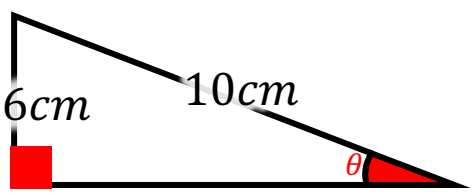
Examples (diagrams NOT to scale)



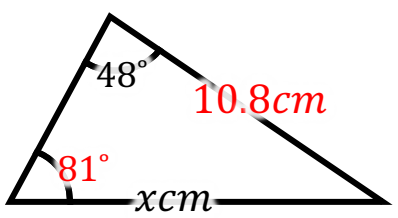
Indicator: The triangle is not right-angled, and the question does not give an angle and opposite side pair.
Rule: Cosine rule



Indicator: The triangle has a right-angle, but does not involve any other angles.
Rule: Pythagoras Theorem



Indicator: The triangle has a right-angle, and involves another angle.
Rule: SOHCAHTOA



Indicator: The triangle is not right-angled, and the question gives an angle and its opposite side.
Rule: Sine rule

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