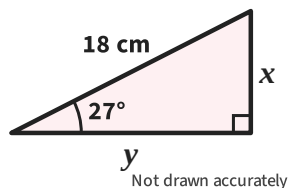


1 Trigonometry: finding a side

Give each answer to 2 decimal places.

- a) Find the length x .
b) Find the length y .

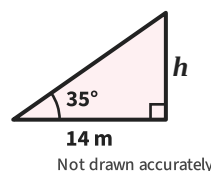


$$\begin{aligned} \text{a) } x &= 18 \times \sin 27^\circ = 8.17 \text{ cm} \\ \text{b) } y &= 18 \times \cos 27^\circ = 16.04 \text{ cm} \end{aligned}$$

2 Trigonometry: finding a side

A tree casts a shadow 14 m long. The angle from the end of the shadow up to the top of the tree is 35° .

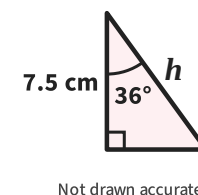
- a) Find the height of the tree, h , to 2 decimal places.
b) Later the angle is 25° . How long is the shadow now?



$$\begin{aligned} \text{a) } h &= 14 \times \tan 35^\circ = 9.80 \text{ m} \\ \text{b) } 9.80 \div \tan 25^\circ &= 21.02 \text{ m} \end{aligned}$$

3 Trigonometry: finding a side

- a) Find the length h to 2 decimal places.
b) Ben works out $h = 7.5 \times \cos 36^\circ = 6.07$ cm. Without working it out, explain how you know Ben is wrong.

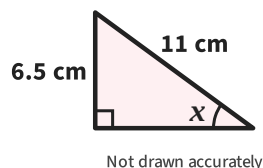


$$\begin{aligned} \text{a) } \cos 36^\circ &= 7.5 \div h \\ h &= 7.5 \div \cos 36^\circ = 9.27 \text{ cm} \\ \text{b) } h &\text{ is the hypotenuse, so more than } 7.5 \text{ cm} \end{aligned}$$

4 Trigonometry: finding an angle

Give each answer to 1 decimal place.

- a) Find the angle x .
b) Find the third angle of the triangle.



$$\begin{aligned} \text{a) } x &= \sin^{-1}(6.5 \div 11) = 36.2^\circ \\ \text{b) } 90 - 36.2 &= 53.8^\circ \end{aligned}$$

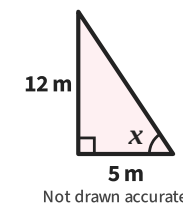
Trigonometry revision mat answers

Foundation A

5 Trigonometry: finding an angle

A straight wire goes from the top of a flagpole 12 m tall to the ground, 5 m from the foot of the pole.

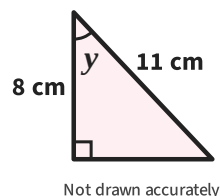
- a) Find the angle x between the wire and the ground, to 1 decimal place.
b) How long is the wire?



$$\begin{aligned} \text{a) } x &= \tan^{-1}(12 \div 5) = 67.4^\circ \\ \text{b) } \sqrt{12^2 + 5^2} &= \sqrt{169} = 13 \text{ m} \end{aligned}$$

6 Trigonometry: finding an angle

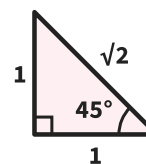
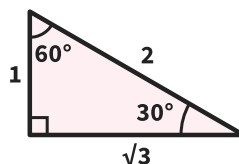
- a) Find the angle y to 1 decimal place.
b) Mia says she should use $\tan$ to find y . Explain why Mia is wrong.



$$\begin{aligned} \text{a) } y &= \cos^{-1}(8 \div 11) = 43.3^\circ \\ \text{b) } \tan &\text{ needs } O \text{ and } A; \text{ we know } A \text{ and } H, \text{ so use } \cos \end{aligned}$$

7 Exact trigonometric values

- a) Write the exact values of $\cos 30^\circ$ and $\tan 60^\circ$.
b) Work out $10 \cos 60^\circ - \tan 45^\circ$ without a calculator.

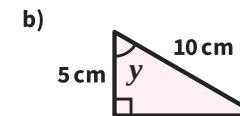
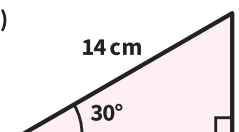


$$\begin{aligned} \text{a) } \cos 30^\circ &= \frac{1}{2}\sqrt{3}, \tan 60^\circ = \sqrt{3} \\ \text{b) } 10 \times \frac{1}{2} - 1 &= 4 \end{aligned}$$

8 Exact trigonometric values

Use exact values. Do not use a calculator.

- a) Find the length x .
b) Find the angle y .



$$\begin{aligned} \text{a) } x &= 14 \times \sin 30^\circ = 14 \times \frac{1}{2} = 7 \text{ cm} \\ \text{b) } \cos y &= 5 \div 10 = 0.5, \text{ so } y = 60^\circ \end{aligned}$$