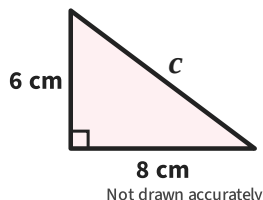


1 Finding the hypotenuse

$$c^2 = 6^2 + 8^2$$

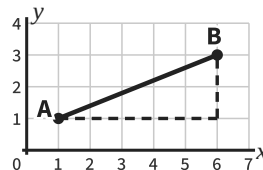
- a) Work out $6^2 + 8^2$.
b) Find the length c .



$$\begin{aligned} \text{a) } 36 + 64 &= 100 \\ \text{b) } c &= \sqrt{100} = 10 \text{ cm} \end{aligned}$$

2 Finding the hypotenuse

- a) Count the squares.
How far across and how far up is it from A to B?
b) Find the length AB to 1 decimal place.

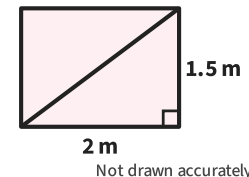


$$\begin{aligned} \text{a) } 5 \text{ across, } 2 \text{ up} \\ \text{b) } \sqrt{(5^2 + 2^2)} &= \sqrt{29} = 5.4 \end{aligned}$$

3 Finding the hypotenuse

A gate is 2 m wide and 1.5 m tall. A wooden bar goes from corner to corner.

- a) How long is the bar?
b) Wood costs £8 per metre. How much does the bar cost?



$$\begin{aligned} \text{a) } \sqrt{(2^2 + 1.5^2)} &= \sqrt{6.25} = 2.5 \text{ m} \\ \text{b) } 2.5 \times \text{£}8 &= \text{£}20 \end{aligned}$$

4 Finding the hypotenuse

A triangle is right angled when the two shorter sides squared add up to the longest side squared.

- a) Is a triangle with sides 9 cm, 12 cm and 15 cm right angled?
b) Is a triangle with sides 5 cm, 6 cm and 8 cm right angled?

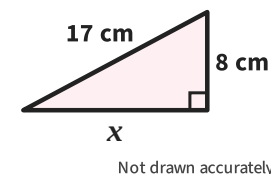
$$\begin{aligned} \text{a) } 81 + 144 &= 225 = 15^2, \text{ so yes} \\ \text{b) } 25 + 36 &= 61, 8^2 = 64, \text{ so no} \end{aligned}$$

Pythagoras' theorem revision mat answers

Foundation B

5 Finding a shorter side

- a) Find the length x .
b) Sam writes $x^2 = 17^2 + 8^2$. What should Sam have written?

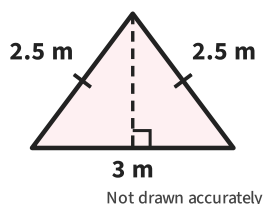


$$\begin{aligned} \text{a) } 17^2 - 8^2 &= 289 - 64 = 225 \\ x &= \sqrt{225} = 15 \text{ cm} \\ \text{b) } x^2 &= 17^2 - 8^2 \end{aligned}$$

6 Finding a shorter side

The end of a tent is an isosceles triangle.

- a) Find the height of the tent.
b) Can a person 1.8 m tall stand up straight in the middle?



$$\begin{aligned} \text{a) } \text{half the width is } 1.5 \text{ m} \\ \sqrt{(2.5^2 - 1.5^2)} &= \sqrt{4} = 2 \text{ m} \\ \text{b) } \text{Yes, } 1.8 \text{ m is less than } 2 \text{ m} \end{aligned}$$

7 Finding a shorter side

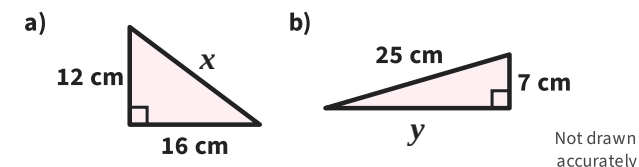
A straight slide is 6.5 m long. The bottom of the slide is 6 m from the foot of its steps.

- a) How high is the top of the slide?
b) Each step is 0.25 m high. How many steps are there?

$$\begin{aligned} \text{a) } \sqrt{(6.5^2 - 6^2)} &= \sqrt{6.25} = 2.5 \text{ m} \\ \text{b) } 2.5 \div 0.25 &= 10 \text{ steps} \end{aligned}$$

8 Finding a shorter side

Find the lengths x and y . Add the squares or take them away?



$$\begin{aligned} \text{a) } \sqrt{(12^2 + 16^2)} &= \sqrt{400} = 20 \text{ cm} \\ \text{b) } \sqrt{(25^2 - 7^2)} &= \sqrt{576} = 24 \text{ cm} \end{aligned}$$