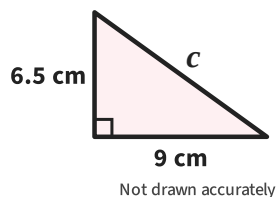


1 Finding the hypotenuse

- a) Find the length c .
Give your answer to 1 decimal place.
- b) Find the perimeter of the triangle.



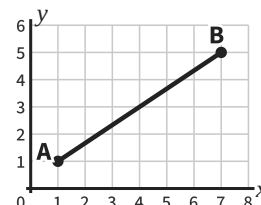
$$a) c^2 = 6.5^2 + 9^2 = 123.25$$

$$c = 11.1 \text{ cm}$$

$$b) 6.5 + 9 + 11.1 = 26.6 \text{ cm}$$

2 Finding the hypotenuse

- a) How far across and how far up is it from A to B?
- b) Find the length of the line AB.
Give your answer to 1 decimal place.



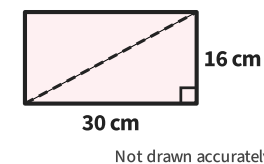
$$a) 6 \text{ across, } 4 \text{ up}$$

$$b) \sqrt{6^2 + 4^2} = \sqrt{52} = 7.2 \text{ units}$$

3 Finding the hypotenuse

A baking tray is a rectangle 30 cm long and 16 cm wide.

- a) Find the length of the diagonal of the tray.
- b) Will a skewer 35 cm long lie flat in the bottom of the tray?
Give a reason.



$$a) \sqrt{30^2 + 16^2} = \sqrt{1156} = 34 \text{ cm}$$

$$b) \text{No: } 35 \text{ cm is longer than } 34 \text{ cm}$$

4 Finding the hypotenuse

- a) A triangle has sides 8 cm, 15 cm and 17 cm. Show that it is right angled.
- b) A triangle has sides 7 cm, 9 cm and 12 cm.
Is it right angled? Show your working.

$$a) 8^2 + 15^2 = 64 + 225 = 289 = 17^2, \text{ so yes}$$

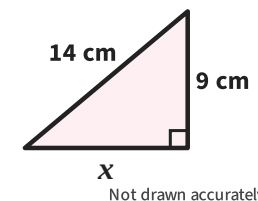
$$b) 7^2 + 9^2 = 130, 12^2 = 144, \text{ not equal, so no}$$

Pythagoras' theorem revision mat answers

Foundation A

5 Finding a shorter side

- a) Find the length x .
Give your answer to 1 decimal place.
- b) Kim says x is 16.6 cm.
Without working it out, explain why Kim must be wrong.



$$a) x^2 = 14^2 - 9^2 = 115$$

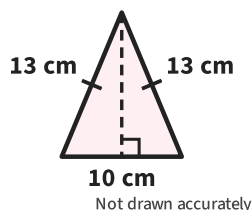
$$x = 10.7 \text{ cm}$$

$$b) x \text{ must be less than } 14, \text{ the hypotenuse}$$

6 Finding a shorter side

The diagram shows an isosceles triangle.

- a) Find the height of the triangle.
- b) Find the area of the triangle.



$$a) \sqrt{13^2 - 5^2} = \sqrt{144} = 12 \text{ cm}$$

$$b) \frac{1}{2} \times 10 \times 12 = 60 \text{ cm}^2$$

7 Finding a shorter side

Ali flies a kite on a straight string 25 m long. The kite is directly above a point 15 m across from Ali's hand.

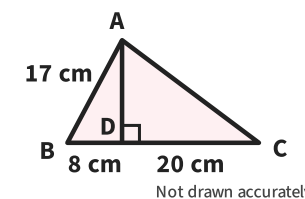
- a) How high is the kite above Ali's hand?
- b) Ali's hand is 1.2 m above the ground. How high is the kite above the ground?

$$a) \sqrt{25^2 - 15^2} = \sqrt{400} = 20 \text{ m}$$

$$b) 20 + 1.2 = 21.2 \text{ m}$$

8 Finding a shorter side

- a) Find the length AD.
- b) Find the length AC.



$$a) AD = \sqrt{17^2 - 8^2} = \sqrt{225} = 15 \text{ cm}$$

$$b) AC = \sqrt{15^2 + 20^2} = \sqrt{625} = 25 \text{ cm}$$