

Pythagoras' Theorem

GCSE Mathematics • **Foundation Tier** • Grades 4–5 • Non-calculator

Name:

Class:

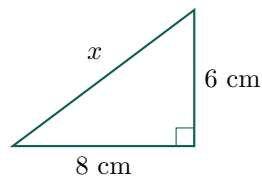
Total: / 65

Show all your working. Marks are given for correct method as well as the final answer.

1. Write down Pythagoras' theorem for a right-angled triangle with shorter sides a and b and hypotenuse c . [1 mark]

Answer:

2. Work out x in the triangle. [3 marks]



Answer: cm

3. A right-angled triangle has shorter sides 5 cm and 12 cm. Work out the hypotenuse. [3 marks]

Answer: cm

4. A right-angled triangle has shorter sides 9 cm and 12 cm. Work out the hypotenuse. [3 marks]

Answer: cm

5. A right-angled triangle has hypotenuse 13 cm and one shorter side 5 cm. Work out the other shorter side. [3 marks]

Answer: cm

6. A right-angled triangle has hypotenuse 25 cm and one shorter side 7 cm. Work out the other shorter side. [3 marks]

Answer: cm

7. Work out the hypotenuse of a triangle with shorter sides 4 cm and 7 cm, to 1 decimal place. [3 marks]

Answer: cm

8. Work out the missing shorter side when the hypotenuse is 10 cm and one side is 6 cm. [3 marks]

Answer: cm

9. A right-angled triangle has shorter sides 2 cm and 3 cm. Give the hypotenuse in surd form. [3 marks]

Answer: cm

10. A triangle has sides 6, 8 and 10 cm. Show that it is right-angled. [3 marks]

Answer:

11. A triangle has sides 5, 7 and 9 cm. Is it right-angled? Show your working. [3 marks]

Answer:

12. Work out the distance between (0,0) and (3,4). [3 marks]

Answer: units

13. Work out the distance between (1,2) and (7,10). [4 marks]

Answer: units

14. Work out the distance between $(-2, 1)$ and $(2, 4)$. [4 marks]

Answer: units

- 15.** A ladder 5 m long leans against a wall with its foot 3 m from the base. Work out how far up the wall it reaches. **[3 marks]**

Answer: m

- 16.** A rectangle measures 12 cm by 5 cm. Work out the length of its diagonal. **[3 marks]**

Answer: cm

- 17.** A boat sails 9 km east then 12 km north. Work out how far it is from its start. **[3 marks]**

Answer: km

- 18.** An isosceles triangle has two sides of 10 cm and a base of 12 cm. Work out its perpendicular height. **[4 marks]**

Answer: cm

19. A rectangular field measures 40 m by 30 m.

(a) Work out the length of the diagonal path across it.

[3 marks]

(b) Work out how much shorter the diagonal is than walking along two sides.

[2 marks]

Answer:

20. A right-angled triangle has hypotenuse 17 cm and one shorter side 8 cm.

(a) Work out the third side.

[3 marks]

(b) Work out the area of the triangle.

[2 marks]

Answer: