# Pythagoras' theorem

**Name:** _____ **Date:** _____



**Mr Boston says:** The hypotenuse is always the longest side, so check your answer is (or isn't) the biggest.

## A. Whole-number answers

**1** Shorter sides 3 cm and 4 cm. Find the hypotenuse.

Answer: _____

**2** Shorter sides 5 cm and 12 cm. Find the hypotenuse.

Answer: _____

**3** Shorter sides 8 cm and 15 cm. Find the hypotenuse.

Answer: _____

**4** Hypotenuse 10 cm, one side 6 cm. Find the other side.

Answer: _____

**5** Hypotenuse 15 cm, one side 9 cm. Find the other side.

Answer: _____

**6** Hypotenuse 25 cm, one side 7 cm. Find the other side.

Answer: _____

## B. Decimals and real life

Round to 1 decimal place where asked.

**7** Shorter sides 4 m and 7 m. Find the hypotenuse to 1 d.p.

Answer: _____

**8** Shorter sides 6 m and 9 m. Find the hypotenuse to 1 d.p.

Answer: _____

**9** Shorter sides 2.5 m and 6.5 m. Find the hypotenuse to 1 d.p.

Answer: _____

**10** A 6 m ladder leans against a wall. Its foot is 1.5 m from the wall. How high up the wall does it reach (1 d.p.)?

Answer: _____

**11** A TV screen is 80 cm wide and 45 cm tall. How long is the diagonal (nearest cm)?

Answer: _____

**12** Find the distance between (1, 2) and (7, 10).

Answer: _____

**13** Is a triangle with sides 7, 9 and 12 cm right-angled? Show working.

Answer: _____

# Answers for grown-ups

Pythagoras' theorem

1. Shorter sides 3 cm and 4 cm. Find the hypotenuse. → **5 cm**
2. Shorter sides 5 cm and 12 cm. Find the hypotenuse. → **13 cm**
3. Shorter sides 8 cm and 15 cm. Find the hypotenuse. → **17 cm**
4. Hypotenuse 10 cm, one side 6 cm. Find the other side. → **8 cm**
5. Hypotenuse 15 cm, one side 9 cm. Find the other side. → **12 cm**
6. Hypotenuse 25 cm, one side 7 cm. Find the other side. → **24 cm**
7. Shorter sides 4 m and 7 m. Find the hypotenuse to 1 d.p. → **8.1 m**
8. Shorter sides 6 m and 9 m. Find the hypotenuse to 1 d.p. → **10.8 m**
9. Shorter sides 2.5 m and 6.5 m. Find the hypotenuse to 1 d.p. → **7.0 m**
10. A 6 m ladder leans against a wall. Its foot is 1.5 m from the wall. How high up the wall does it reach (1 d.p.)? → **5.8 m**
11. A TV screen is 80 cm wide and 45 cm tall. How long is the diagonal (nearest cm)? → **92 cm**
12. Find the distance between (1, 2) and (7, 10). → **10 units**
13. Is a triangle with sides 7, 9 and 12 cm right-angled? Show working. → **No: $7^2 + 9^2 = 130$, $12^2 = 144$**