Worked answers | Pythagoras' theorem

# Finding the hypotenuse

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

**1.** Find the hypotenuse for legs 6 cm and 8 cm. [2 marks]

$c^2 = 36 + 64 = 100.$

Take the positive square root.

**Answer:** 10 cm.

**2.** Find the hypotenuse for legs 8 m and 15 m. [2 marks]

$c^2 = 64 + 225 = 289.$

The positive root is 17.

**Answer:** 17 m.

**3.** Find the hypotenuse for legs 7 cm and 24 cm. [2 marks]

$c^2 = 49 + 576 = 625.$

The positive root is 25.

**Answer:** 25 cm.

**4.** Find the hypotenuse for legs 1.5 m and 2 m. [2 marks]

$c^2 = 2.25 + 4 = 6.25$.

The positive root is 2.5.

**Answer:** 2.5 m.

**5.** Find the hypotenuse for legs 60 cm and 0.8 m. [3 marks]

Convert 60 cm to 0.6 m.

$c^2 = 0.36 + 0.64 = 1$.

**Answer:** 1 m, or 100 cm.

**6.** A student finds $c = 7$ cm for legs 8 cm and 15 cm. Explain the size check and correct the answer. [3 marks]

The size check already rejects 7.

Compute $64 + 225 = 289$ and take the root.

**Answer:** The hypotenuse cannot be shorter than either leg; $c = 17$ cm.