

Mixed Pythagoras Revision — Solutions



Worked answers showing how to find missing sides and check for right angles.

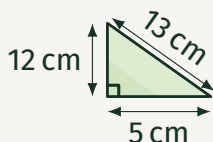
Name _____

Date _____

Show your working

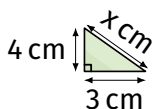
Use $a^2 + b^2 = c^2$ to find missing sides or check if three numbers form a right-angled triangle. Explain your reasoning.

Worked example Is this a right-angled triangle?



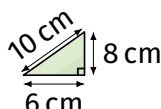
Check using $a^2 + b^2 = c^2$: $5^2 + 12^2 = 25 + 144 = 169$ $13^2 = 169$ ☒ Yes, this is a right-angled triangle.

1. Find the missing side.



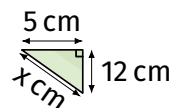
Solution: $3^2 + 4^2 = x^2 \Rightarrow x = 5$

2. Is this a right-angled triangle?



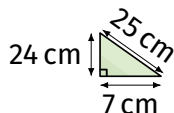
Solution: $6^2 + 8^2 = 36 + 64 = 100 = 10^2$ ☒ Yes

3. Find the missing side.



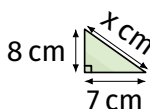
Solution: $5^2 + 12^2 = x^2 \Rightarrow x = 13$

4. Is this a right-angled triangle?



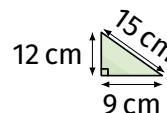
Solution: $7^2 + 24^2 = 49 + 576 = 625 = 25^2$ ☒ Yes

5. Find the missing side to 1 d.p.



Solution: $7^2 + 8^2 = x^2 \Rightarrow x^2 = 113 \Rightarrow x \approx 10.6$

6. Is this a right-angled triangle?



Solution: $9^2 + 12^2 = 81 + 144 = 225 = 15^2$ ☒ Yes

7. A rectangle is 6 cm wide and 8 cm tall. Find the diagonal.

Solution: $d^2 = 6^2 + 8^2 = 100 \Rightarrow d = 10$ cm

8. A ladder is 13 m long. Its base is 5 m from the wall. How high up the wall?

Solution: $h^2 = 13^2 - 5^2 = 169 - 25 = 144 \Rightarrow h = 12$ m

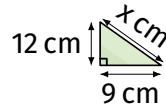
9. Is a triangle with sides 9, 40, and 41 cm right-angled? Explain.

Solution: $9^2 + 40^2 = 81 + 1600 = 1681 = 41^2$ ☒ Yes (9-40-41 triple)

10. A square has side length 7 m.
Find the diagonal to 1 d.p.

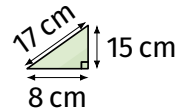
Solution: $d^2 = 7^2 + 7^2 = 98 \Rightarrow d \approx 9.9 \text{ m}$

11. Find the missing side.



Solution: $9^2 + 12^2 = x^2 \Rightarrow x = 15$

12. Is this a right-angled triangle?



Solution: $8^2 + 15^2 = 64 + 225 = 289 = 17^2$ ☒ Yes

13. An isosceles triangle has equal sides 10 cm and base 12 cm.
Find the height.

Solution: $h^2 = 10^2 - 6^2 = 100 - 36 = 64 \Rightarrow h = 8 \text{ cm}$

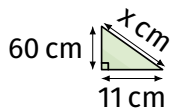
14. A rectangle is 15 cm by 20 cm.
Find the diagonal.

Solution: $d^2 = 15^2 + 20^2 = 225 + 400 = 625 \Rightarrow d = 25 \text{ cm}$

15. A ladder reaches 12 m up a wall and is 5 m from the base.
Find the ladder length.

Solution: $l^2 = 12^2 + 5^2 = 144 + 25 = 169 \Rightarrow l = 13 \text{ m}$

16. Find the missing side to 1 d.p.



Solution: $x^2 = 11^2 + 60^2 = 121 + 3600 = 3721 \Rightarrow x = 61$

17. Is a triangle with sides 13, 84, and 85 cm right-angled? Show your working.

Solution: $13^2 + 84^2 = 169 + 7056 = 7225 = 85^2$ ☒ Yes (13-84-85 triple)

18. A square has diagonal 10 m.
Find the side length to 1 d.p.

Solution: $s^2 + s^2 = 10^2 \Rightarrow 2s^2 = 100 \Rightarrow s \approx 7.1 \text{ m}$