

Applying Pythagoras theory



Spot the hidden right-angled triangle, then use Pythagoras' theorem to find the missing length.

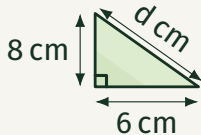
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How to solve

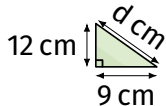
Look for the right-angled triangle inside the shape or situation. Label the known lengths clearly. Write the equation, show your substitution, and include units in your answer. Round to the number of decimal places asked.

Worked example A rectangle is 6 m by 8 m. Find the diagonal.

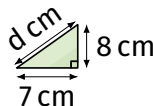


The diagonal is the hypotenuse. $d^2 = 6^2 + 8^2 = 36 + 64 = 100$
 $d = \sqrt{100} = 10$ m

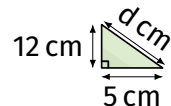
1. A rectangle measures 9 cm by 12 cm. Find the diagonal.



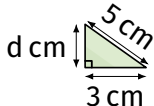
2. A rectangle is 7 m by 8 m. Find the diagonal to 1 d.p.



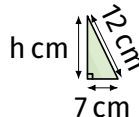
3. A rectangle is 5 cm by 12 cm. Find the diagonal.



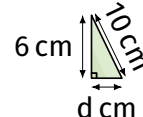
4. A 5 m ladder leans against a wall. It reaches 3 m up the wall. How far is the base from the wall?



5. A ladder is 12 m long. Its base is 7 m from the wall. How high does it reach to 1 d.p.?



6. A ladder is 10 m long. It reaches 6 m up the wall. How far is the base from the wall to 1 d.p.?



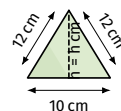
7. An isosceles triangle has equal sides of 13 cm and base 10 cm. Find the height.



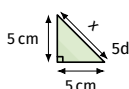
8. An isosceles triangle has equal sides of 10 cm and base 8 cm. Find the height to 1 d.p.



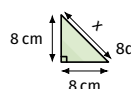
9. An isosceles triangle has equal sides 10 cm and base 12 cm. Find the height.



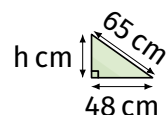
10. A square has side length 5 cm. Find its diagonal.



11. A square has side length 8 cm. Find its diagonal to 1 d.p.



12. A TV screen is 65 inches (diagonal). The width is 48 inches. Find the height to the nearest inch.



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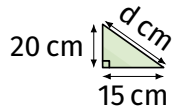
Apply Pythagoras' theorem in more complex situations.



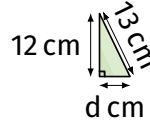
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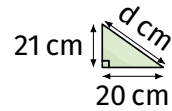
- 13.** A rectangle is 15 cm by 20 cm. Find the diagonal.



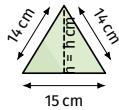
- 14.** A ladder is 13 m long. It reaches 12 m up a wall. How far is the base from the wall?



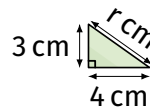
- 15.** A rectangle is 20 m by 21 m. Find the diagonal to 1 d.p.



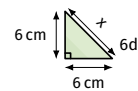
- 16.** An isosceles triangle has equal sides 15 cm and base 14 cm. Find the height to 1 d.p.



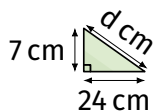
- 17.** A ramp forms a right triangle. It rises 3 m and runs 4 m. Find the length of the ramp.



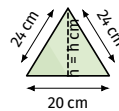
- 18.** A square has side length 6 cm. Find its diagonal to 1 d.p.



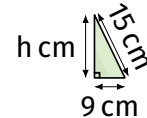
- 19.** A rectangle is 24 cm by 7 cm. Find the diagonal.



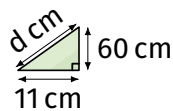
- 20.** An isosceles triangle has equal sides 20 cm and base 24 cm. Find the height to 1 d.p.



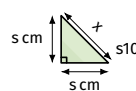
- 21.** A ladder is 15 m long. Its base is 9 m from the wall. How high does it reach to 1 d.p.?



- 22.** A rectangle is 11 cm by 60 cm. Find the diagonal to 1 d.p.



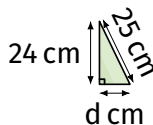
- 23.** A square has diagonal 10 cm. Find its side length to 1 d.p.



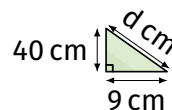
- 24.** An isosceles triangle has equal sides 17 cm and base 16 cm. Find the height.



- 25.** A ladder is 25 m long. It reaches 24 m up a wall. How far is the base from the wall?



- 26.** A rectangle is 9 cm by 40 cm. Find the diagonal to 1 d.p.



- 27.** A ramp rises 2 m and runs 5 m. Find the length of the ramp to 1 d.p.

