Introduction to Pythagoras' Theorem: Finding the Long Side

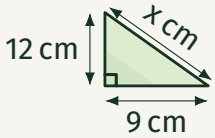
Use the diagram and Pythagoras' theorem to find the missing hypotenuse.

Name _____ **Date** _____

Show your method

Write the equation using $a^2+b^2=c^2$, substitute the two known shorter sides, and solve for the hypotenuse. Round to 1 decimal place if needed.

Worked example Find the missing hypotenuse in a right-angled triangle with shorter sides 9 cm and 12 cm.



Using $a^2 + b^2 = c^2$:

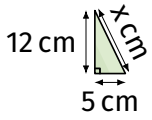
$9^2 + 12^2 = c^2$

$81 + 144 = c^2$

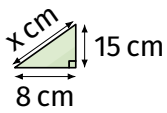
$225 = c^2$

$c = 15$ cm

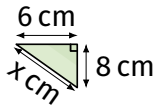
1. Find the length of x.



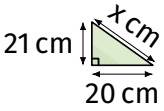
2. Find the length of x.



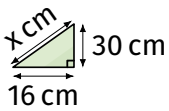
3. Find the length of x.



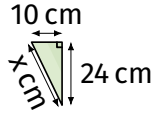
4. Find the length of x.



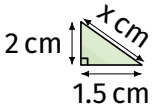
5. Find the length of x.



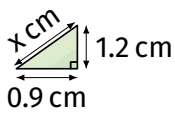
6. Find the length of x.



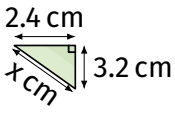
7. Find the length of x.



8. Find the length of x.



9. Find the length of x.



Introduction to Pythagoras' Theorem (continued)

Apply Pythagoras' theorem to find the hypotenuse in various contexts.

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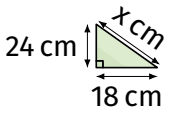
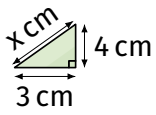
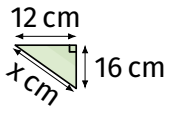
10. Find the length of x.



11. Find the length of x.



12. Find the length of x.



13. A right-angled triangle has shorter sides 6.4 cm and 9.1 cm. Find the hypotenuse to 1 d.p.

14. A right-angled triangle has shorter sides 1.1 m and 2.4 m. Find the hypotenuse to 1 d.p.

15. A zip-line is anchored 15 m from the base of a tower and reaches 20 m up the tower. Find the length of the zip-line.

16. A rectangular sports field is 30 m wide and 40 m long. Find the length of the diagonal path across it.

17. A ladder must reach a window 5.5 m up a wall. Its foot is placed 1.5 m from the wall. Find the length of ladder needed, to 1 d.p.

18. A television screen measures 35 cm by 62 cm. Find the length of its diagonal, to the nearest cm.