

Pythagoras' Theorem Adding Worksheet

Solve each of the following problems related to Pythagoras' Theorem. Show all your workings clearly. Use the formula:

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

where a and b are the lengths of the two shorter sides of a right-angled triangle, and c is the length of the hypotenuse.

Problem Solving Questions

1. A right-angled triangle has legs of length 6 cm and 8 cm. Find the length of the hypotenuse.
2. In a right-angled triangle, one leg is 5 cm and the hypotenuse is 13 cm. Find the length of the other leg.
3. The sides of a right-angled triangle are 9 cm and 12 cm. Calculate the length of the hypotenuse.
4. A ladder leans against a wall. The foot of the ladder is 3 m from the wall and the ladder reaches a height of 4 m on the wall. Find the length of the ladder.
5. A rectangular field measures 15 m by 20 m. What is the length of the diagonal across the field?
6. A triangle has sides of 7 cm and 24 cm and a hypotenuse of 25 cm. Is this a right-angled triangle? Show your working.
7. The hypotenuse of a right-angled triangle is 17 cm, and one of the legs is 8 cm. Find the length of the other leg.
8. A square has sides of length 10 cm. What is the length of the diagonal of the square?
9. A right-angled triangle has a hypotenuse of 10 cm and one leg of 6 cm. Find the length of the other leg.
10. A ship sails 9 km east and then 12 km north. How far is the ship from its starting point (to the nearest km)?

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Answer Key

1. Hypotenuse = 10 cm
2. Other leg = 12 cm
3. Hypotenuse = 15 cm
4. Ladder length = 5 m
5. Diagonal = 25 m
6. Yes, it is a right-angled triangle (since $7^2 + 24^2 = 49 + 576 = 625 = 25^2$)
7. Other leg = 15 cm
8. Diagonal = $10\sqrt{2}$ cm (approximately 14.14 cm)
9. Other leg = 8 cm
10. Distance from starting point = 15 km (by $\sqrt{9^2 + 12^2} = \sqrt{225} = 15$)