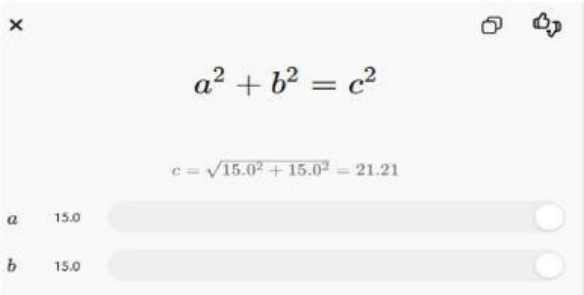
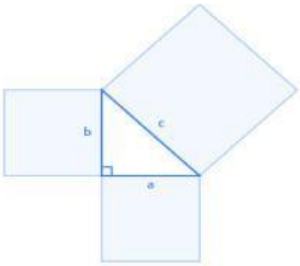
The Pythagorean Theorem Worksheet





The **Pythagorean Theorem** is used to find the missing side of a **right triangle**.

- **Legs:** The two shorter sides (a and b)
- **Hypotenuse:** The longest side, opposite the right angle (c)

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

Step-by-Step Example

Find the hypotenuse when:

- a = 3
- b = 4

Step 1: Write the formula. $a^2 + b^2 = c^2$

Step 2: Substitute the known values. $3^2 + 4^2 = c^2$

Step 3: Square each number. $9 + 16 = c^2$

Step 4: Add. $25 = c^2$

Step 5: Take the square root of both sides. $\sqrt{25} = \sqrt{c^2}$

Final Answer: $5 = c$

Part A – Find the Hypotenuse - Use the Pythagorean Theorem to find **c**.

1. a = 3, b = 4 c = _____
2. a = 5, b = 12 c = _____
3. a = 8, b = 15 c = _____
4. a = 7, b = 24 c = _____
5. a = 9, b = 12 c = _____
6. a = 20, b = 21 c = _____

Part B – Find the Missing Leg

Use the Pythagorean Theorem to find the missing leg.

7. c = 13, a = 5 b = _____
8. c = 17, b = 8 a = _____
9. c = 25, a = 7 b = _____
10. c = 10, b = 6 a = _____
11. c = 26, a = 10 b = _____
12. c = 41, b = 9 a = _____

LIVEWORKSHEETS

Part C – Word Problems

13. A ladder is 10 feet long and reaches 8 feet up a wall. How far is the bottom of the ladder from the wall?

    Answer: _____

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14. A rectangular television measures 24 inches high and 32 inches wide. What is the length of the diagonal?

    Answer: _____

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15. A baseball diamond has sides measuring 90 feet. What is the distance from home plate to second base? (Round to the nearest tenth.)

    Answer: _____

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16. A kite string is 50 feet long. The kite is directly above a point that is 14 feet away from the person holding the string. How high is the kite? (Round to the nearest tenth.)

    Answer: _____

LIVEWORKSHEETS