

Converse of the Pythagorean Theorem Worksheet

Use the **Converse of the Pythagorean Theorem** to determine whether each triangle is a **right triangle**, **acute triangle**, or **obtuse triangle**.

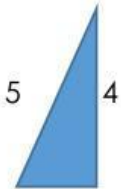
Remember:

If the side lengths of a triangle are a , b , and c , where c is the longest side:

- If $a^2 + b^2 = c^2$, the triangle is **RIGHT**.
- If $a^2 + b^2 > c^2$, the triangle is **ACUTE**.
- If $a^2 + b^2 < c^2$, the triangle is **OBTUSE**.

Part A – Identify the Triangle

1. Use the diagram.



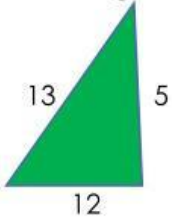
Sides: 3, 4, 5

Is the triangle right, acute, or obtuse?

Show your work:

$$3^2 + 4^2 = \boxed{} + 16 = \boxed{}$$
$$5^2 = \boxed{}$$

2. Use the diagram.



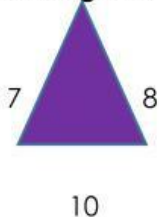
Sides: 5, 12, 13

Is the triangle right, acute, or obtuse?

Show your work:

$$5^2 + 12^2 = \boxed{} + 144 = \boxed{}$$
$$13^2 = \boxed{}$$

3. Use the diagram.



Sides: 7, 8, 10

Is the triangle right, acute, or obtuse?

Compare the two quantities:

$$7^2 + 8^2 \quad \text{and} \quad 10^2$$

Show your work:

$$7^2 + 8^2 = 49 + 64 = \boxed{}$$

$$10^2 = \boxed{}$$

Since $113 \boxed{} 100$, the triangle is $\boxed{}$

Part B – Use the Converse

For each set of side lengths, determine whether the triangle is **RIGHT**, **ACUTE**, or **OBTUSE**.

6. **7, 24, 25**

$$49 + 576 = \boxed{}$$

Answer: _____

$$25^2 = \boxed{}$$

7. **8, 15, 17**

$$64 + 225 = \boxed{}$$

Answer: _____

$$17^2 = \boxed{}$$

8. **9, 12, 15**

$$81 + 144 = \boxed{}$$

Since **61** $\boxed{}$ **64**:

$$15^2 = \boxed{}$$

Answer: _____

Part C – True or False

Write **T** or **F**

16. ____ If $a^2 + b^2 = c^2$, then the triangle is a right triangle.

17. ____ The longest side of a triangle should be identified as "c" when using the Converse of the Pythagorean Theorem.

18. ____ A triangle with side lengths 6, 8, and 10 is a right triangle.

19. ____ A triangle with side lengths 5, 6, and 8 is a right triangle.

20. ____ If $a^2 + b^2 < c^2$, the triangle is obtuse.