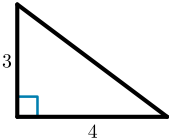
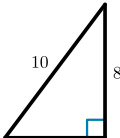
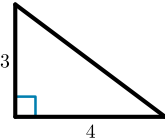


Pythagorean Theorem

Examples & Non-Examples

Example	Example	Non-Example
 $3^2 + 4^2 = c^2$ $9 + 16 = c^2$ $\sqrt{25} = \sqrt{c^2}$ $5 = c$	 $8^2 + b^2 = 10^2$ $64 + b^2 = 100$ $\begin{array}{r} -64 \\ \hline \end{array}$ $\sqrt{b^2} = \sqrt{36}$ $b = 6$	 $3^2 + b^2 = 4^2$

Definition

The **Pythagorean Theorem** is a fundamental principle in geometry that relates the **sides of a right triangle**.

It states that:

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

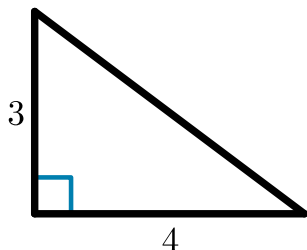
Where:

- a and b are the **legs** (the two shorter sides of the right triangle)
- c is the **hypotenuse** (the longest side, opposite the right angle)

In Words:

The square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.

Example:



$$3^2 + 4^2 = 9 + 16 = 25 = 5^2$$

So the hypotenuse is 5.

