

Write down everything you know about triangles.

• 3 sides • 3 angles

• shape

• Area: $\frac{bh}{2}$

Write down everything you know about right triangles.

• has 90° angle

Square Roots!



This is a square root symbol and there is a button on your calculator for it.

It is an operation asking us to find a number that when multiplied by itself gives you the number under the square root.

Examples:

$$\sqrt{4} = 2$$

$$2 \cdot 2 = 4$$

$$\sqrt{16} = 4$$

$$4 \cdot 4 = 16$$

$$\sqrt{100} = 10$$

$$10 \cdot 10 = 100$$

$$\sqrt{70} = 8.4$$

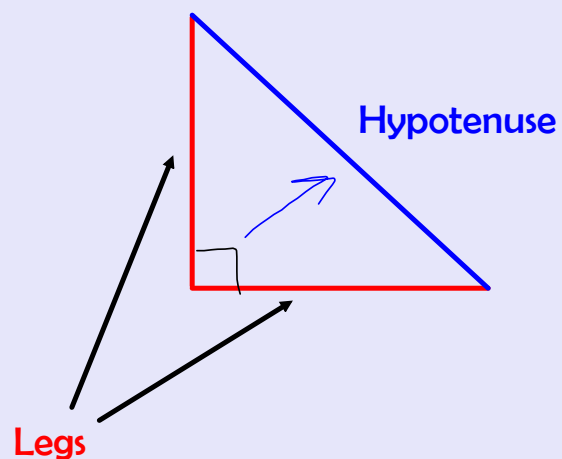
$$\sqrt{101} = 10.0$$

$$\sqrt{50} = 7.1$$

6.2 Pythagorean Theorem

Right Triangle: A triangle with one right angle

90°



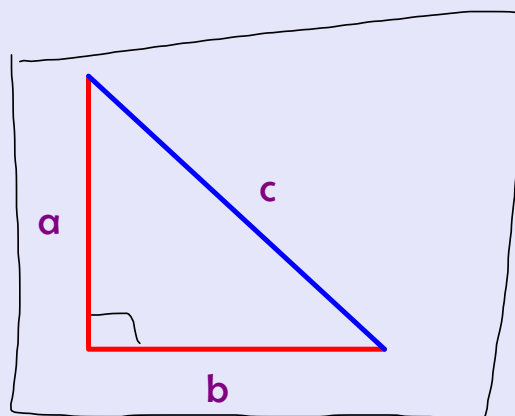
Hypotenuse: The side of the right triangle that is always across from the right angle.

The Pythagorean Theorem allows us to find all three sides of a right triangle.

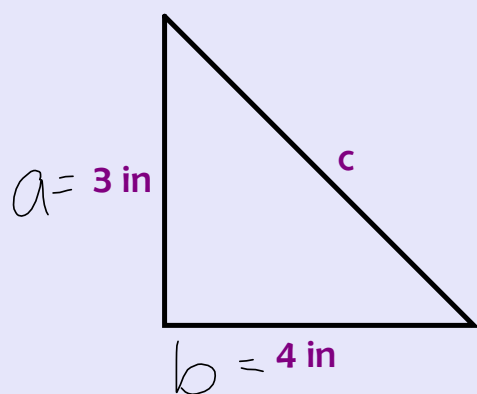
The Pythagorean Theorem is:

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

where a and b must be the **legs**
and c always is the **hypotenuse**.



Example: Find the measure of side length c .



$$\boxed{5 \text{ in}}$$

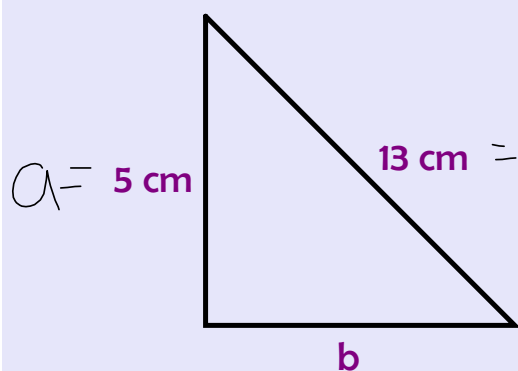
$$a^2 + b^2 = c^2$$
$$3^2 + 4^2 = c^2$$

$$9 + 16 = c^2$$

$$\sqrt{25} = \sqrt{c^2}$$

$$\boxed{5 = c}$$

Example: Find the measure of side length b .



12 cm

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 5^2 + b^2 &= 13^2 \\ \cancel{25} + b^2 &= 169 \\ - \cancel{25} & \quad - 25 \\ \hline \sqrt{b^2} &= \sqrt{144} \\ b &= 12 \end{aligned}$$

Example: Find the measure of side length a .

