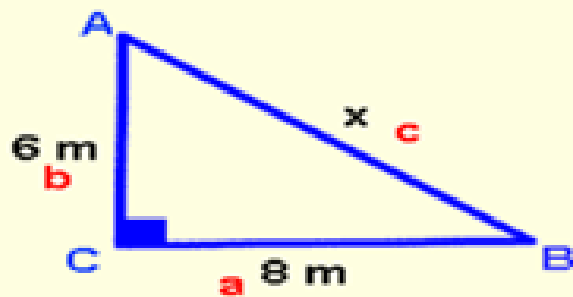


# The Pythagorean Theorem

We use the Pythagorean Theorem to solve for a missing side in a right triangle, when you know the other 2 sides.

If you are finding the hypotenuse:  $a^2 + b^2 = c^2$

If you are finding a leg:  $a^2 = c^2 - b^2$



**Find  $x$ .**

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

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

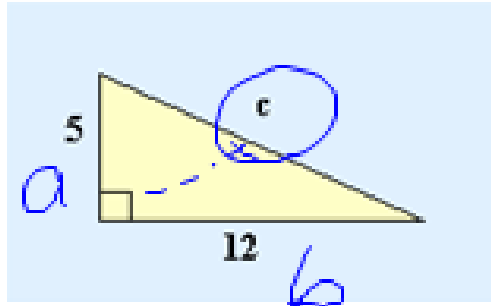
$$x^2 = 8^2 + 6^2$$

$$x^2 = 64 + 36$$

$$x^2 = 100$$

$$\sqrt{x^2} = \sqrt{100}$$

$$x = 10$$



\*c is always  
the  
hypotenuse!!

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

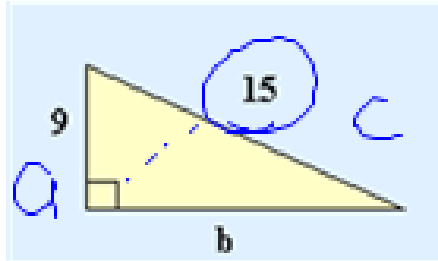
$$5^2 + 12^2 = c^2$$

$$25 + 144 = c^2$$

$$169 = c^2$$

$$\sqrt{169} = \sqrt{c^2}$$

$$\boxed{13 = c}$$



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

$$b^2 = c^2 - a^2$$

$$b^2 = 15^2 - 9^2$$

$$b^2 = 225 - 81$$

$$b^2 = 144$$

$$\sqrt{b^2} = \sqrt{144}$$

$$b = 12$$