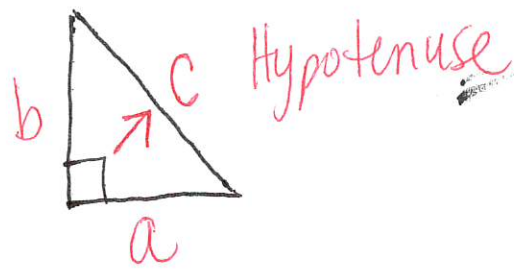


# Pythagorean Theorem

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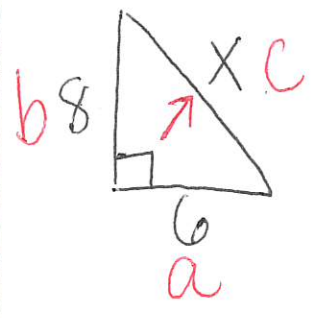
ES: How do we use Pythagorean Theorem and when do we use it?

We use the Pythagorean Theorem when we are given two side lengths of a right triangle and need to solve for the third missing side length.



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

(ex1)  
Solve for c



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

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

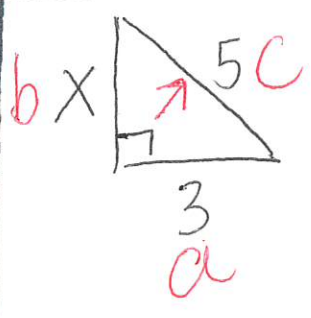
$$36 + 64 = x^2$$

$$100 = x^2$$

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

$$10 = x$$

(ex2)  
Solve for b (or a)



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

$$3^2 + x^2 = 5^2$$

$$9 + x^2 = 25$$

$$\begin{array}{r} -9 \\ \hline x^2 = 16 \end{array}$$

$$\sqrt{x^2} = \sqrt{16}$$

$$x = 4$$

Summary