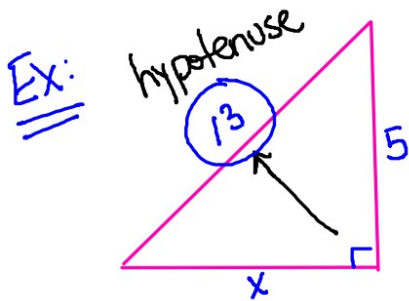
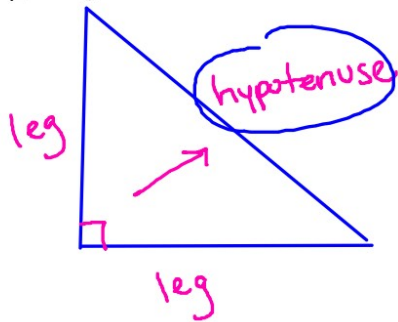


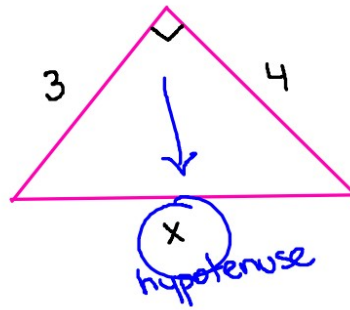
Hypotenuse is always across from the right angle.



Pythagorean Theorem  $(\text{leg}^2 + \text{leg}^2 = \text{hypotenuse}^2)$

\* Must have two sides

Ex:



$$3^2 + 4^2 = x^2$$

$$9 + 16 = x^2$$

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

$$5 = x$$

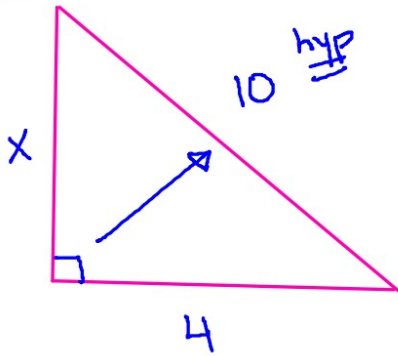
$$x^2 + 5^2 = 13^2$$

$$x^2 + 25 = 169$$

$$\begin{array}{r} -25 \\ \hline x^2 = 144 \end{array}$$

$$x = 12$$

Ex:



$$x^2 + 4^2 = 10^2$$

$$x^2 + 16 = 100$$

$$\begin{array}{r} -16 \\ -16 \end{array}$$

$$\sqrt{x^2} = \sqrt{84}$$

$$x = \sqrt{84}$$

$$x = \sqrt{4} \sqrt{21}$$

$$x = 2\sqrt{21}$$

Perfect Squares

- ④
- ~~9~~
- ~~16~~
- ~~25~~
- ~~36~~
- ~~49~~
- ~~64~~
- ~~81~~
- ...

Ex:

$$8^2 + x^2 = 12^2$$

$$64 + x^2 = 144$$

$$\begin{array}{r} -64 \\ -64 \end{array}$$

$$x^2 = 80$$

$$\sqrt{x} = \sqrt{80}$$

$$x = \sqrt{16} \sqrt{5}$$

$$x = 4\sqrt{5}$$