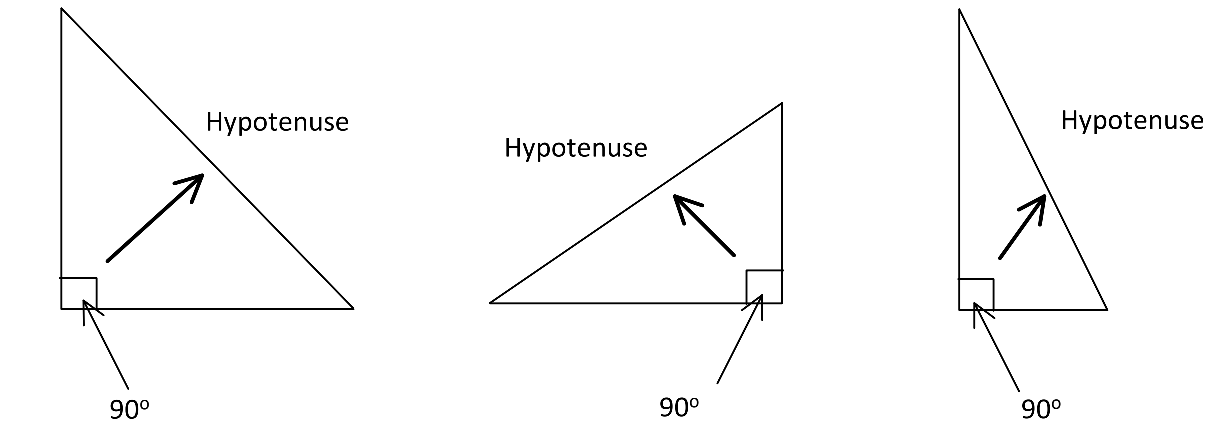
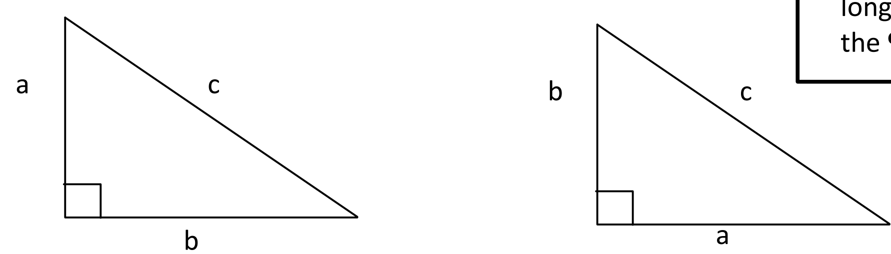
# M8 - 3.3 - Identifying "a, b, c" Notes

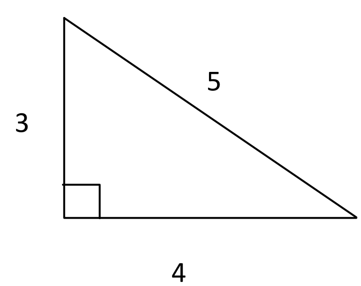



**Identifying a, b, and c.**

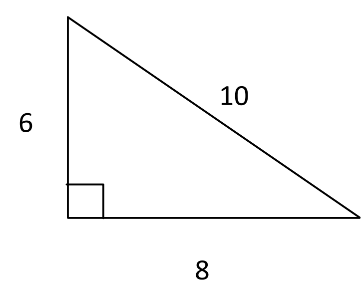
"a" and "b" can switch.
"c" is always the hypotenuse, the longest side, the side opposite of the $90^o$ angle.




**Identifying a, b, and c.**




$a = 3$
$b = 4$
$c = 5$




$a = 8$
$b = 6$
$c = 10$

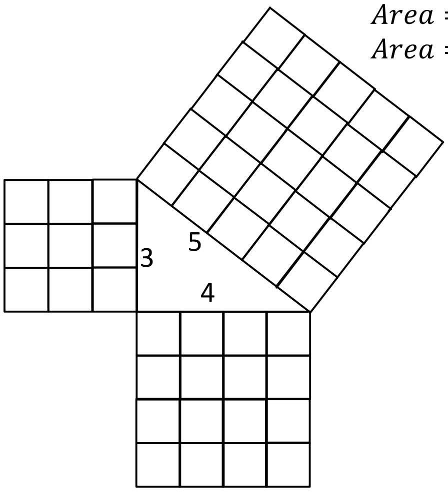
# M8 - 3.3 - Pythagoras' Theorem Notes

**Pythagoras' Theorem: $a^2 + b^2 = c^2$**

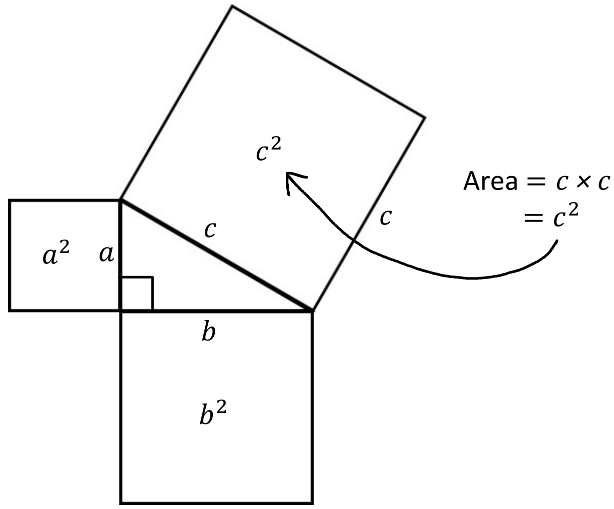
**Remember: "c" is always the Hypotenuse: the longest side**

$Area = 5 \times 5$
$Area = 25$

$Area = 3 \times 3$
$Area = 9$



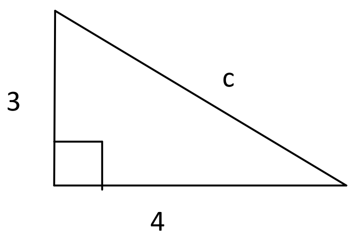

$Area = 4 \times 4$
$Area = 16$




$$9\ squares + 16\ squares = 25\ squares$$

$$\sqrt{25} = 5$$

Solve for "c".

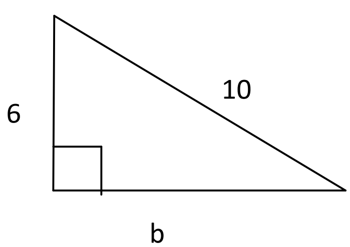



$a^2 + b^2 = c^2$
$3^2 + 4^2 = c^2$
$9 + 16 = c^2$
$25 = c^2$
$\sqrt{25} = \sqrt{c^2}$
$5 = c$

**Remember:**
The Area of the two small squares adds to the area of the large square.

$c = \sqrt{a^2 + b^2}$

Solve for "a" or "b".




$a^2 + b^2 = c^2$
$6^2 + b^2 = 10^2$
$36 + b^2 = 100$
$-36 \qquad -36$
$b^2 = 64$
$\sqrt{b^2} = \sqrt{64}$
$b = 8$

OR

**Remember:**
Bigger square minus smaller square equals other smaller square.

$c^2 - a^2 = b^2$
$10^2 - 6^2 = b^2$
$100 - 36 = b^2$
$64 = b^2$
$\sqrt{64} = \sqrt{b^2}$
$b = 8$

$b = \sqrt{c^2 - a^2}$