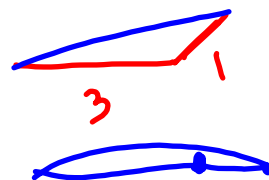
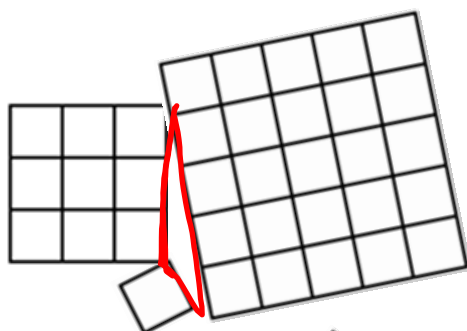
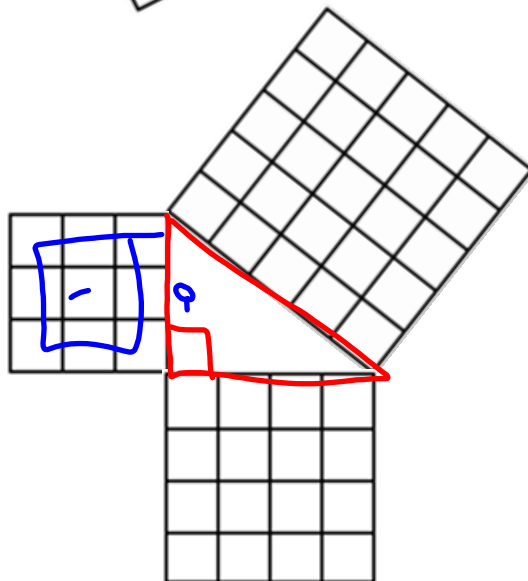


1-3-5



3-4-5



Combination of Side Lengths	RIGHT	Non-Right
1, 3, 5	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3, 4, 5	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5, 6, 8	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6, 8, 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5, 9, 12	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5, 12, 13	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8, 13, 15	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9, 12, 15	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9, 10, 13	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5, 9, 10	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Can you come up with two more combinations of side lengths that will create a right triangle? Record your own combinations in empty space in the chart above. We will test these together shortly.

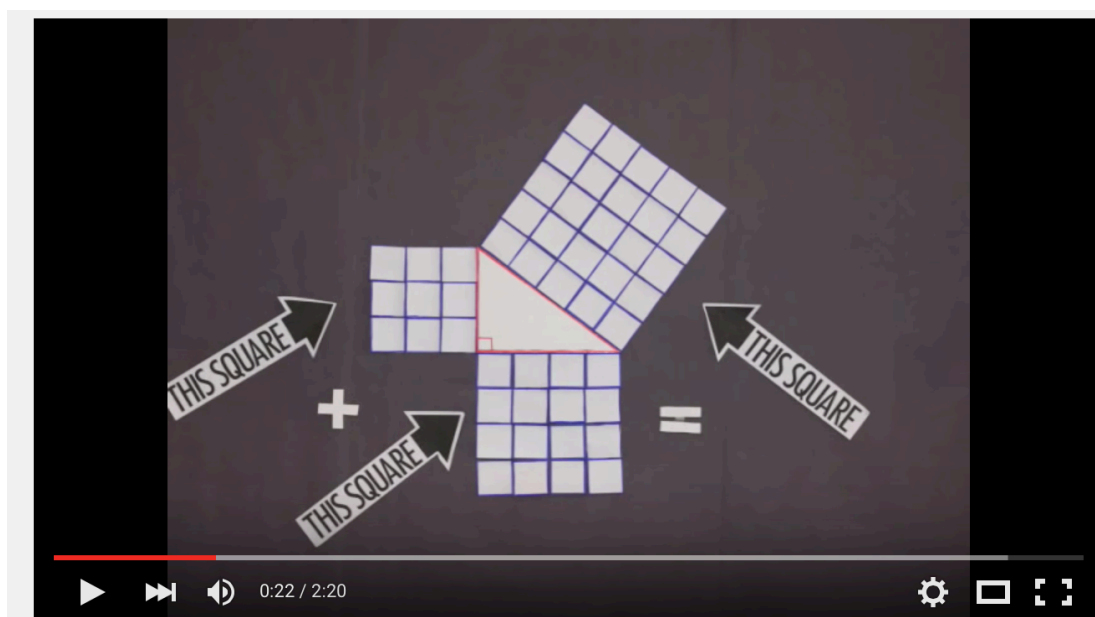
Right Triangle Combos a, b, c	Area of Square with side a	Area of Square with side b	Area of Largest Square with side c
3 4 5	9	+ 16	= 25
6 8 10	36	+ 64	= 100
5 12 13	25	+ 144	= 169
8 13 15	64	+ 169	≠ 225

Right

Non - Right Triangle Combos a, b, c	Area of Square with side a	Area of Square with side b	Area of Largest Square with side c
1 3 5	1	+ 9	≠ 25
5 6 8	25	+ 36	≠ 64
5 9 12	25	+ 81	≠ 144

Non-Right

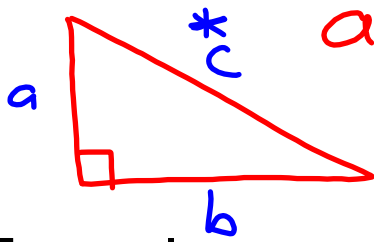
Click the image to watch the video



Click the object to watch the video



Conclusion:

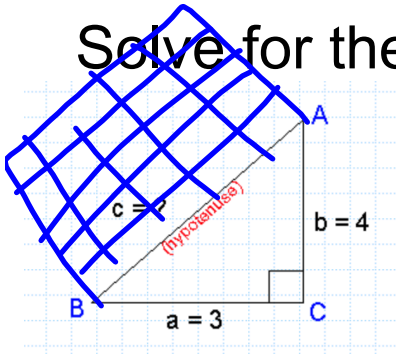


$$a^2 + b^2 = c^2$$

* c must be the hypotenuse

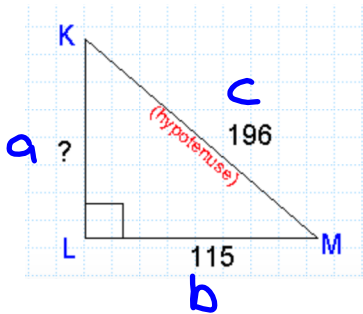
Examples:

Solve for the indicated value.

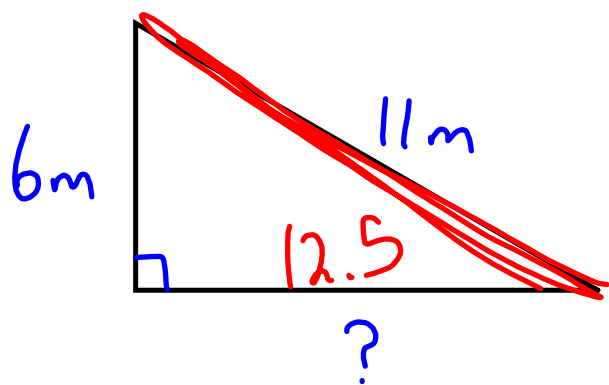


$$\begin{aligned} a^2 + b^2 &= c^2 \\ 3^2 + 4^2 &= c^2 \\ 9 + 16 &= c^2 \\ \sqrt{25} &= \sqrt{c^2} \end{aligned}$$

$$c = 5$$



$$\begin{aligned} c^2 - b^2 &= a^2 \\ 196^2 - 115^2 &= a^2 \\ 38416 - 13225 &= a^2 \\ \sqrt{25191} &= \sqrt{a^2} \\ 158.7 &= a \end{aligned}$$



$$11^2 = 121$$

$$6^2 = 36$$

$$121 + 36 = 157$$

