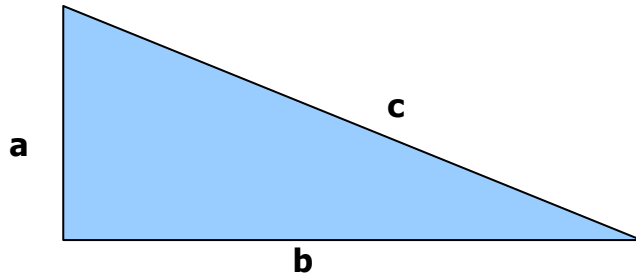


NAME _____

 a^2, b^2, c^2

Consider the right triangle below with unknown side lengths a , b , and c .

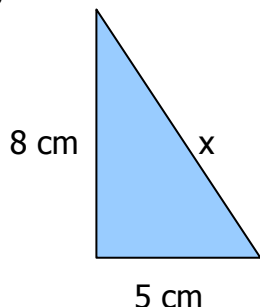


In the table below, there are measurements for the sides of some right triangles. Use the given information, to evaluate the unknown information in the table.

	a	b	c	a^2	b^2	c^2
Triangle #1	3	4	5			
Triangle #2	5	12	13			
Triangle #3	$\frac{3}{5}$	$\frac{4}{5}$	1			
Triangle #4	0.9	1.2	1.5			

1. Distinguish the relationships between the values of a^2 , b^2 , and c^2 ?
2. Create a rule that could describe this relationship?

We can use the Pythagorean Theorem to predict the length of the hypotenuse of a right triangle. The answer must be EXACT and to the nearest tenth.



Around the room you should see many different right triangles taped out on the wall. Measure the legs of at least three different triangles and then use the Pythagorean Theorem to predict the length of the hypotenuse to the nearest tenth. (Hint: The height of each brick is 8 cm and the length is 16 cm.)

Triangle #1

a =

b =

Work:

Triangle #2

a =

b =

Work:

Triangle #3

a =

b =

Work:

c =

c =

c =

We can also use the Pythagorean Theorem to predict the length of a leg in a right triangle. Consider the examples below...

1. You prop a 9 ft. ladder up against the side of your house. The base of the ladder is 3 ft. away from the edge of the house. Estimate the height of the top of the ladder above the ground?

2. A car leaves the airport and drives due east for 30 km and then turns and drives due north for another 50 km to end up at its destination. If an airplane traveled from the airport to the same destination, but flew in a straight path, estimate the number of km the plane would travel to get there?