Name: _____

Vocabulary and Symbols

Describe the following geometry words in your own words. Draw the symbol if there is one associated with it.

Triangle:

Right Triangle:

Legs of a Triangle:

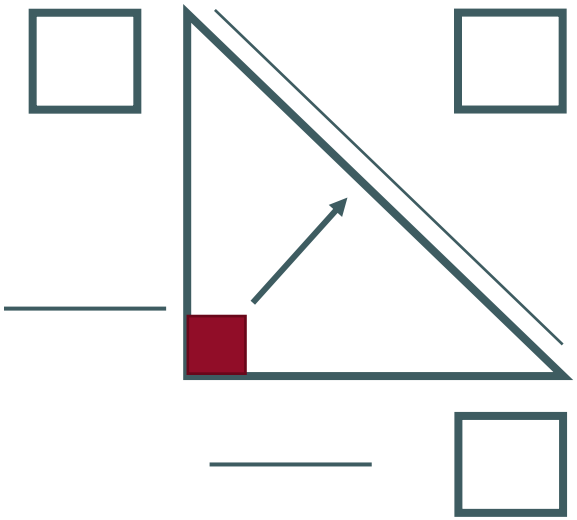
Hypotenuse of a Triangle:

Angle:

Square Root:

Pythagorean Theorem

On the lines below, record the vocabulary terms for each side. Then, using a, b, and c, label each side of the triangle in the boxes below.



REFLECT:
What is the relationship among $a^2, b^2, and\ c^2$?

CREATE:
Using $a^2, b^2, and\ c^2$, write an equation to describe the mathematical relationship for Pythagorean theorem.

Am I Right?

Determine whether each of the following problems below are right triangles using the Pythagorean rule.

1. Do these three sides construct a right triangle?

   a = 6 ft a^2 = _____
   b = 8 ft b^2 = _____
   c = 10 ft c^2 = _____

2. Do these three lengths form a right triangle?

   a = 7 cm a^2 = _____
   b = 8 cm b^2 = _____
   c = 12 cm c^2 = _____

3. Do these three sides create a right triangle?

   a = 5 in a^2 = _____
   b = 12 in b^2 = _____
   c = 13 in c^2 = _____

4. Do these three lengths make a right triangle?

   a = 9 m a^2 = _____
   b = 12 m b^2 = _____
   c = 15 m c^2 = _____

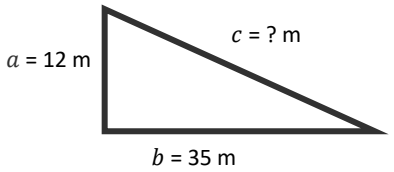
WRITE, PAIR, SHARE:
What does it mean when $a^2 + b^2 \neq c^2$?

TURN & TALK:
What relationships do you notice between the side lengths of the Cheez-Its® triangle and questions 1 and 4?

What's My Hypotenuse?

Use a calculator and the formula to find the length of each missing hypotenuse.

5. c^2 = _____



Set up the equation: $a^2 + b^2 = c^2$

If a = 12 m, a^2 = _____

If b = 35 m, b^2 = _____

Now, $a^2 + b^2$ = _____

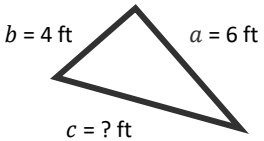
So, c^2 = _____

If we know the value of c^2, we can use the square root to find c.

$\sqrt{c^2}$ = _____ and this is the value of c.

WRITE, PAIR, SHARE:
Can the hypotenuse or a leg be a decimal? Why or why not?

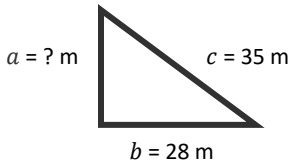
6. Using the measurements of the right triangle below, determine the following:



a^2 = _____
b^2 = _____
c^2 = _____
c = _____

What's My Leg Length?

WRITE, PAIR, SHARE:
Using what you know about solving equations and the right triangle below, how would you find the missing leg of a right triangle?
Record your hypothesis in the box:



Check your understanding by solving for the missing leg of the same right triangle above.

7. Solve for the missing leg.

   Set up the equation: $a^2 + b^2 = c^2$

   b^2 = _____

   c^2 = _____

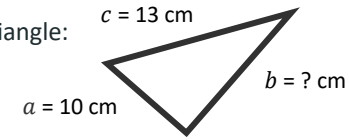
   Now, substitute the known values,

   a^2 + _____ = _____

   Solve for a by isolating the variable, a^2.

   Then find the square root of a^2 and this is the value of a.

8. Solve for the missing leg of the right triangle:



   b = _____