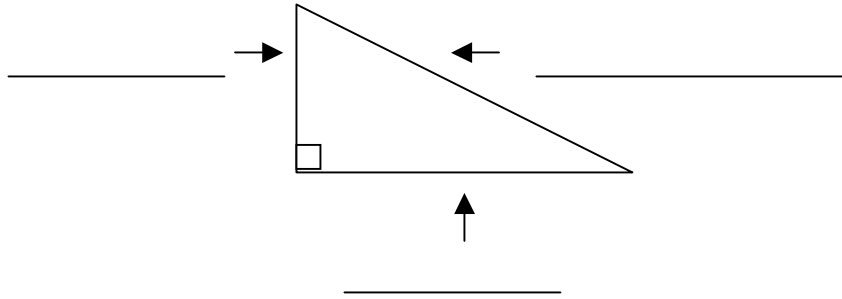


PYTHAGOREAN THEOREM

ALGEBRA

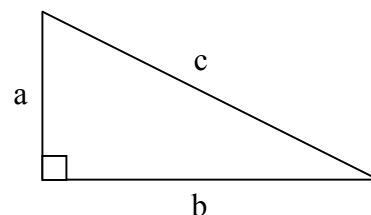
NAME: _____
PERIOD: _____ **DATE:** _____

1. In a right triangle, the side opposite the right angle is called the _____.
2. The hypotenuse is the _____ side. We use the variable c to represent the hypotenuse when we don't know its length.
3. The other two sides of the triangle are called the _____ (these two sides form the right angle). We use the variables a and b to represent the legs.
4. Label the hypotenuse and legs in this right triangle:



5. The _____ describes the relationship of the lengths of the sides of a _____ triangle.
6. The Pythagorean Theorem is named after _____, a Greek philosopher and mathematician who taught around 530 BC.
7. Remember, we use a and b to represent the legs of a right triangle and c to represent the hypotenuse. The Pythagorean Theorem states that when we have a right triangle, the sum of the squares of the lengths of the _____ ($a^2 + b^2$) is equal to the square of the length of the _____ (c^2).
8. The **Pythagorean Theorem** (using variables).

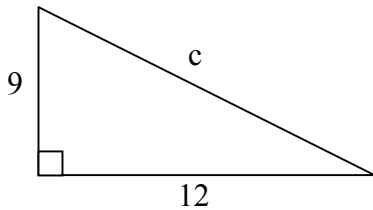
$$\underline{\quad} + \underline{\quad} = \underline{\quad}$$



PYTHAGOREAN THEOREM ALGEBRA – EXAMPLES

NAME: _____
PERIOD: ____ #: ____

1. What is the length of the hypotenuse of the triangle?



Write the Pythagorean Theorem: _____

Substitute 9 for a and 12 for b : _____

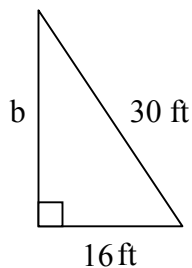
Simplify: _____

To get c by itself, take the square
Root of both sides: _____

Write the answer: _____

$c =$ ____

2. Find the length of the missing side in the triangle below.



Write the Pythagorean Theorem: _____

Substitute 16 for a and 30 for c : _____

Simplify: _____

Subtract 256 from both sides: _____

To get b by itself, take the square

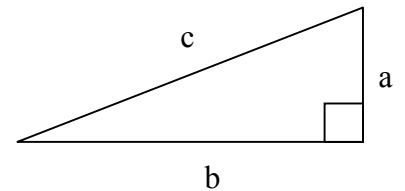
Root of both sides (calculator is ok): _____

Write the answer: _____

$b =$ ____ ft.

Using the triangle at the right, find the length of the missing side.

3. $a = 6$, $b = 8$, $c = ?$



4. $a = 3$, $b = ?$, $c = 5$

5. $a = ?$, $b = 10$, $c = 15$ (Round to nearest tenth)

6. A pigeon leaves its nest and flies 5 km due east. Then he flies 3 km due north. How far is the pigeon from his nest? (Draw a picture! Round to nearest tenth).