Geometry – Unit 8 Task **Name: _____!**

Pythagorean Proof

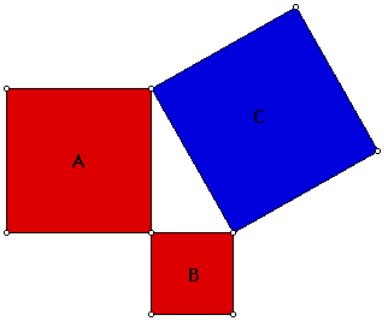
G.SRT.B.4 **Date: _____ Pd: ____**

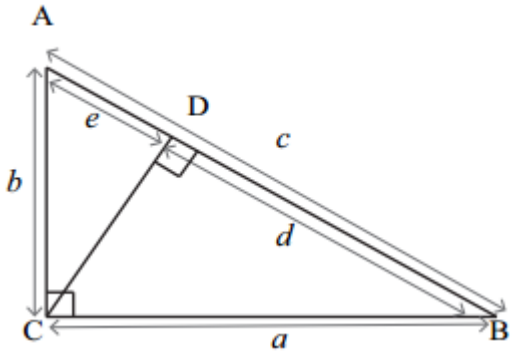
The Pythagorean Theorem was one of the earliest theorems known to ancient civilizations. This famous theorem is named for the Greek mathematician and philosopher, Pythagoras. Pythagoras founded the Pythagorean School of Mathematics in Cortona, a Greek seaport in Southern Italy. He is credited with many contributions to mathematics although some of them may have actually been the work of his students.

The Pythagorean Theorem is Pythagoras' most famous mathematical contribution. According to legend, Pythagoras was so happy when he discovered the theorem that he offered a sacrifice of oxen. The later discovery that the square root of 2 is irrational and therefore, cannot be expressed as a ratio of two integers, greatly troubled Pythagoras and his followers. They were devout in their belief that any two lengths were integral multiples of some unit length. Many attempts were made to suppress the knowledge that the square root of 2 is irrational. It is even said that the man who divulged the secret was drowned at sea.

The Pythagorean Theorem is a statement about triangles containing a right angle. The Pythagorean Theorem states that:

"The area of the square built upon the hypotenuse of a right triangle is equal to the sum of the areas of the squares upon the remaining sides."





Refer to the diagram at left:

1) Use Segment Addition to find: c = ___ + ___
2) According to Angle-Angle postulate: $\Delta ABC \sim \Delta$ _____
3) Therefore the sides are proportional and $\frac{a}{c} = \frac{\square}{\square}$.
4) Use the Multiplication Property of Equality to simplify:

   _____ = _____
5) Also: $\frac{c}{b} = \frac{\square}{\square}$.
6) Use the Multiplication Property of Equality to simplify: _____ = _____
7) Therefore, the Addition Property of Equality allows us to say: $a^2 + b^2 =$ _____ + _____ .
8) Use the Distributive Property to rewrite the equation: $a^2 + b^2 =$ ___(___ + ___).
9) Substitute: $a^2 + b^2 =$ ___(___) = ___^{2}.