Name _____ Date _____

Objective 7
TEKS 8.7.C Review

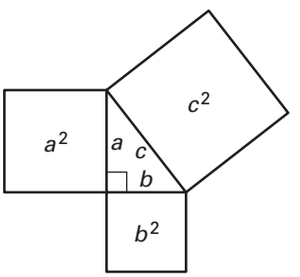
8.7.C Use pictures or models to demonstrate the Pythagorean Theorem.

The Pythagorean Theorem states that in any right triangle, the sum of the squares of the lengths of the legs is equal to the square of the length of the hypotenuse.

a = length of leg

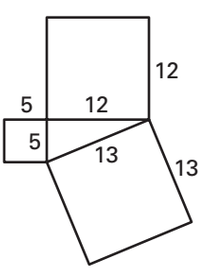
b = length of leg

c = length of hypotenuse (longest side)



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

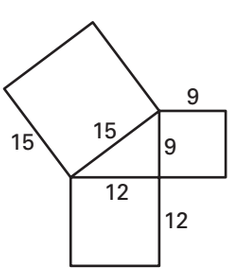
EXAMPLE Does the model demonstrate the Pythagorean Theorem?



$5 \times 5 = 25$ square units	square of shortest leg
$12 \times 12 = 144$ square units	square of longest leg
$13 \times 13 = 169$ square units	square of hypotenuse
$25 + 144 = 169$	sum of squares of legs = square of the hypotenuse

Because the sum of the two squares of the legs is equal to the square of the hypotenuse, the model demonstrates the Pythagorean Theorem.

YOU DO IT The model shows how three squares could be joined to form a triangle. Do the squares form a right triangle?



The ___hypotenuse___ is the longest side. It is ___15___ units long. The legs are ___9___ units and ___12___ units long. The square formed by the shorter leg is $9 \cdot 9 =$ ___81___ square units. The square formed by the longer leg is $12 \cdot 12 =$ ___144___ square units. The square formed by the hypotenuse is $15 \cdot 15 =$ ___225___ square units. Because $81 + 144 =$ ___225___, the sum of the squares of the two legs is equal to the square of the hypotenuse. The triangle is a right triangle.