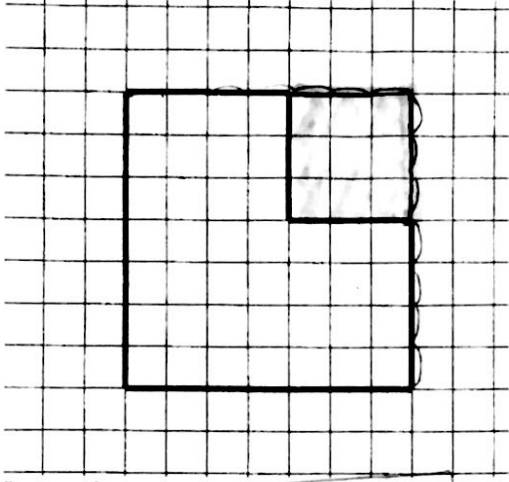


Name: \_\_\_\_\_ Date: \_\_\_\_\_ Per. \_\_\_\_\_

U9 CWK #1:

A Proof of the Pythagorean Theorem

1. Find the area of the shape below. Each square on the grid has a side length of 1 unit.

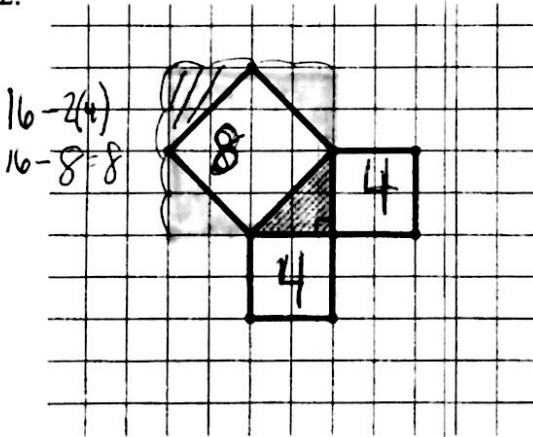


$$49 - 9 = 40 \text{ u.}^2$$

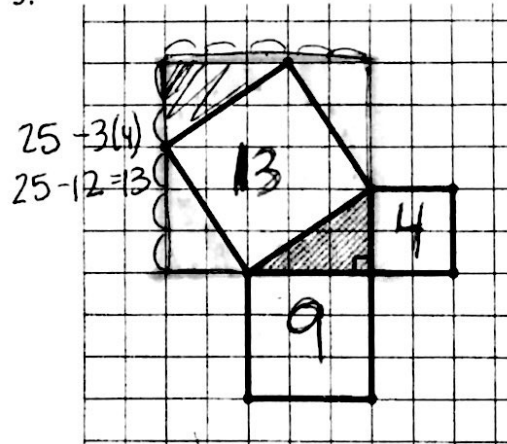
In numbers 2 and 3, a right triangle is shown in gray. The shorter sides of a right triangle are referred to as legs. The longer side of the right triangle (the side opposite of the right angle) is called the hypotenuse.

**Directions:** Squares have been drawn adjacent to the sides of the right triangle. Find the area of each of the squares. Assuming each square on the grid has a side length of 1 unit. Write the areas inside each of the squares.

2.



3.



4. What do you notice about the relationship between the areas of the squares formed adjacent to the legs of a right triangle?

$(\text{leg } 1)^2 + (\text{leg } 2)^2 = (\text{hypotenuse})^2$

leg 1	leg 2	hypotenuse
2	2	$\sqrt{8}$
3	4	$\sqrt{13}$

$a$  &  $b$  = legs       $c$  = hypotenuse

- a. Write an **equation** that shows the relationship between the side lengths of a right triangle using  $a$  and  $b$  for the lengths of the legs and  $c$  for the length of the hypotenuse.

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

**Directions:** In each of the problems below, a right triangle is shown in gray. The squares along each of the three sides of the triangles have been drawn. The area of two of the squares is given. Determine the area of the third square. Write your answer in the square. Also find the side length of each square, write the sides lengths below each picture.

