

Unit 4A: Day 6: The relationship between squares and triangles.

Focus Question: How does the type of triangle relate to the area of squares?

- A. The sides of a triangle
 The three sides of a triangle are commonly referred to as a , b , and c : " a " is usually the shortest side, " b " is commonly the middle length side, and " c " is always the longest side.

For each triangle below, identify what type of triangle it is, then label the sides with a , b , and c .



Right Δ

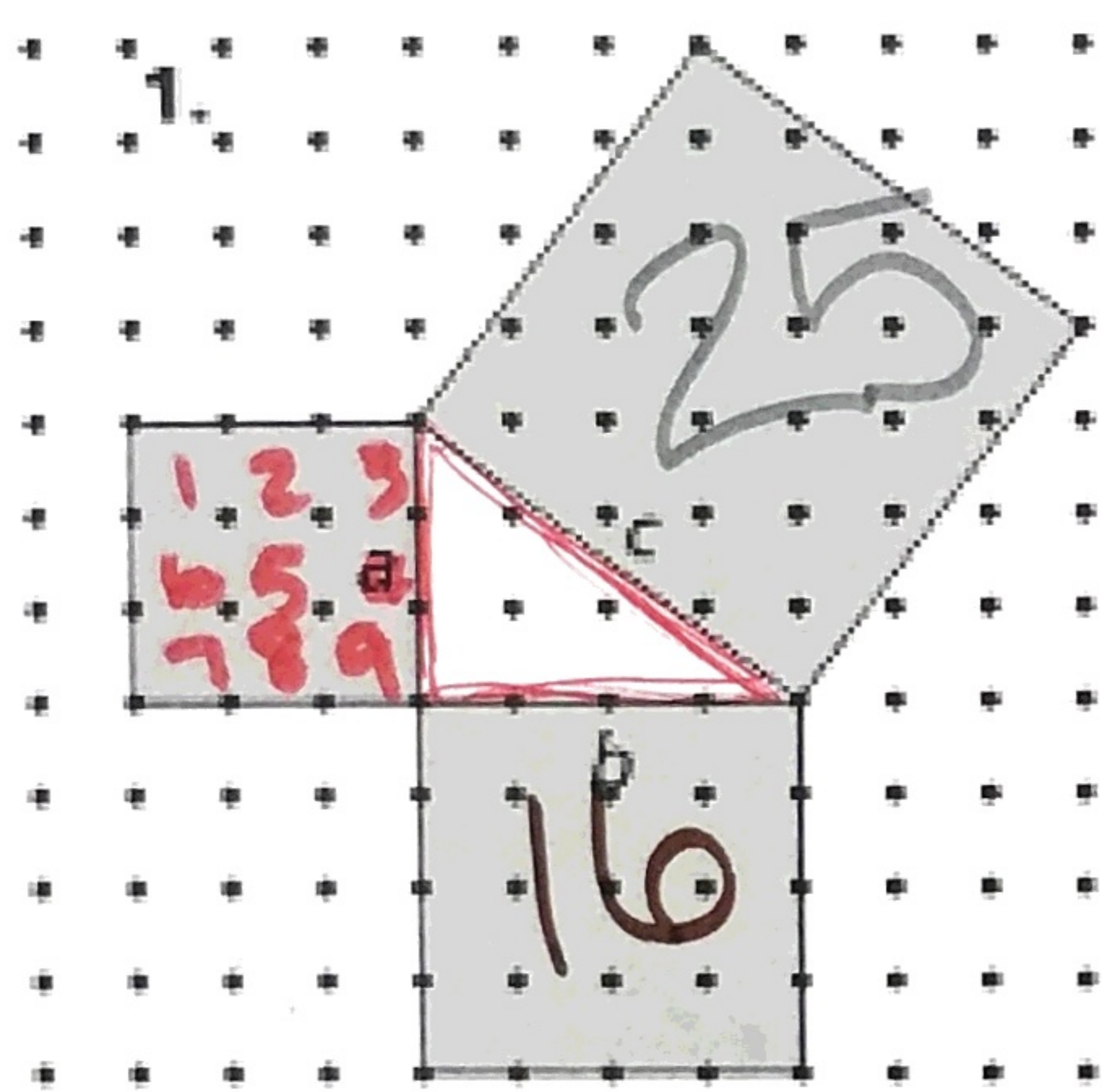


Obtuse Δ



Acute Δ

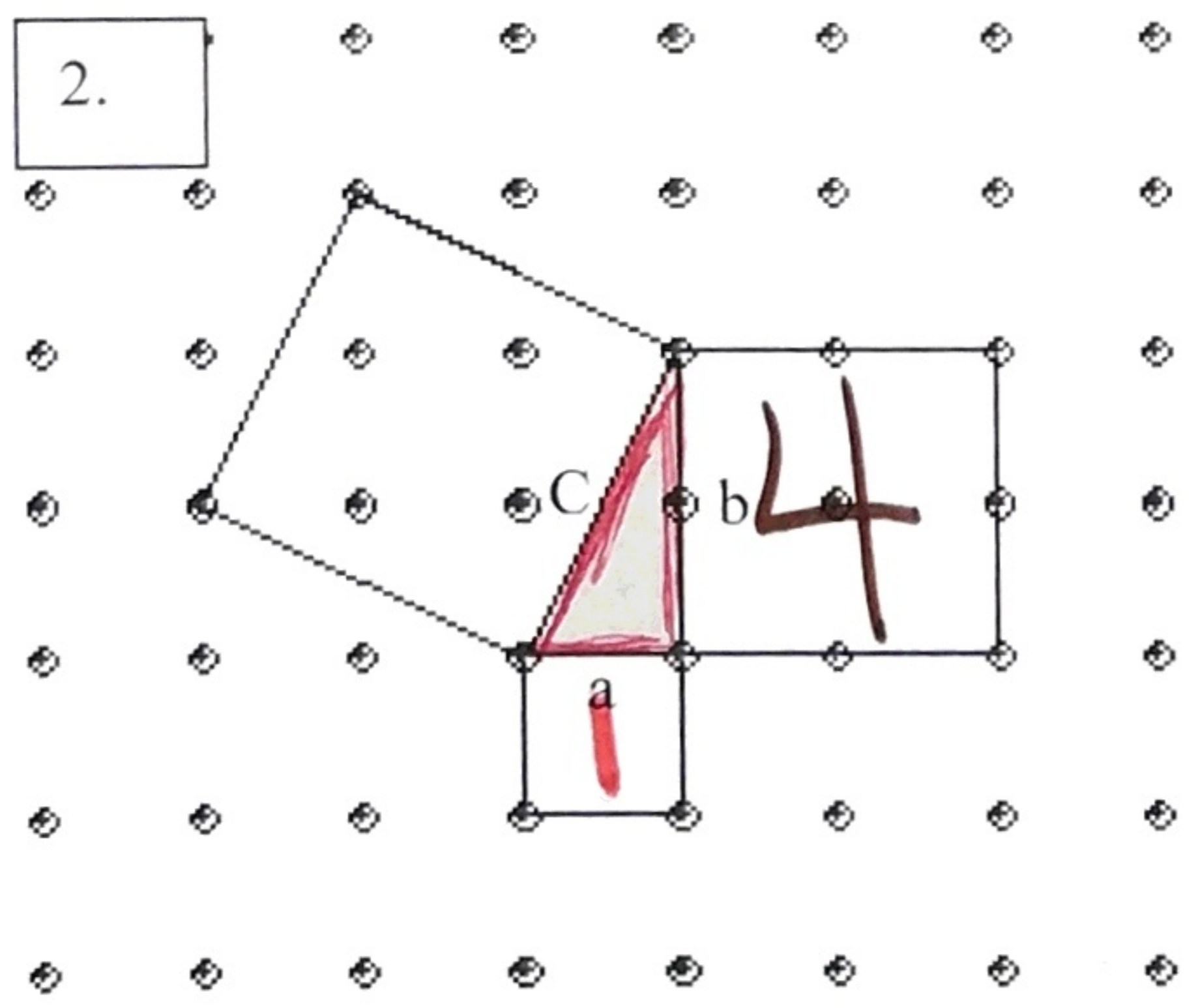
- B. The relationship between triangles and squares.
 In each picture below, a triangle is drawn in the middle. Off of each side of the triangle, a square has been drawn. Fill in the charts for each picture.



Type of Triangle: Right Δ

Area of smallest square (a^2)	+	Area of medium square (b^2)	< or > or =	Area of largest square (c^2)
9	+	16	=	25

Length of smallest side (a)	+	Length of medium side (b)	< or > or =	Length of longest side (c)
3	+	4	>	5



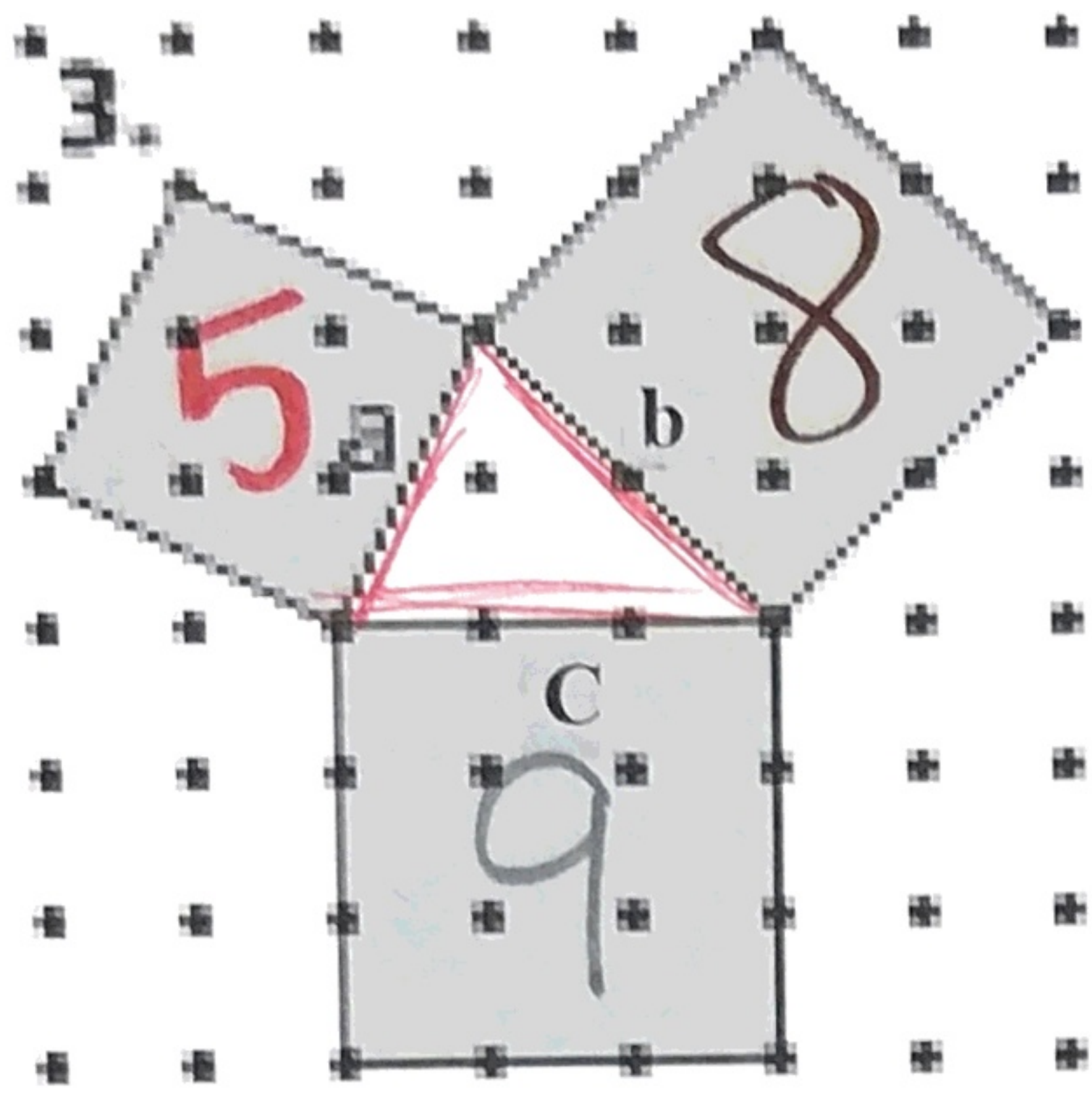
Type of Triangle: Right Δ

Area of smallest square (a^2)	+	Area of medium square (b^2)	< or > or =	Area of largest square (c^2)
1	+	4	=	5

Length of smallest side (a)	+	Length of medium side (b)	< or > or =	Length of longest side (c)
1	+	2	>	$\sqrt{5}$

Right Δ 's $a^2 + b^2 = c^2$ And $a + b > c$

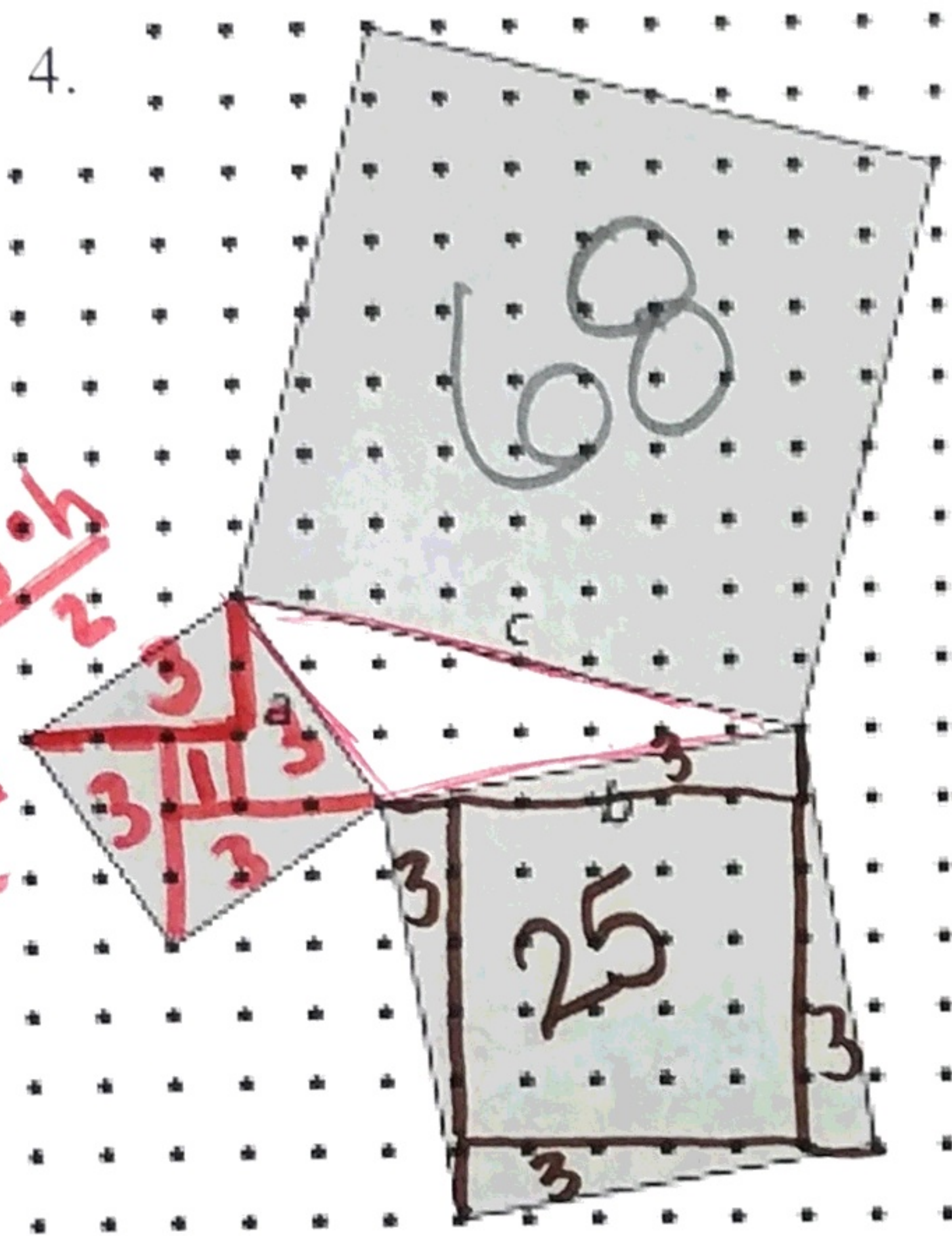
≈ 2.1



Type of Triangle: Acute Δ

Area of smallest square (a^2)	+	Area of medium square (b^2)	< or > or =	Area of largest square (c^2)
5	+	8	>	9

Length of smallest side (a)	+	Length of medium side (b)	< or > or =	Length of longest side (c)
$\sqrt{5}$ 2.1	+	$\sqrt{8}$ 2.9	>	3



Type of Triangle: Obtuse Δ

Area of smallest square (a^2)	+	Area of medium square (b^2)	< or > or =	Area of largest square (c^2)
13	+	37	<	68

Length of smallest side (a)	+	Length of medium side (b)	< or > or =	Length of longest side (c)
$\sqrt{13}$ 3.6	+	$\sqrt{37}$ 6.05	>	$\sqrt{68}$ 8.2

C. Review Question from 7th grade:

Make an observation about the **lengths of the sides** and the types of triangle.

No matter the type of triangle the sum of a and b is always greater than c .

D. NEW!!!

Make an observation about **the areas of the squares** and the types of triangle.



If a triangle is a right triangle, then $a^2 + b^2 = c^2$.



This is the Pythagorean Theorem!