Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_

**Proving the Pythagorean Theorem**

Goals:

Students will prove the Pythagorean Theorem by finding the area of the sides of a right triangle.

Students will discover that the area of the hypotenuse is equal to the sum of the areas of the two legs.

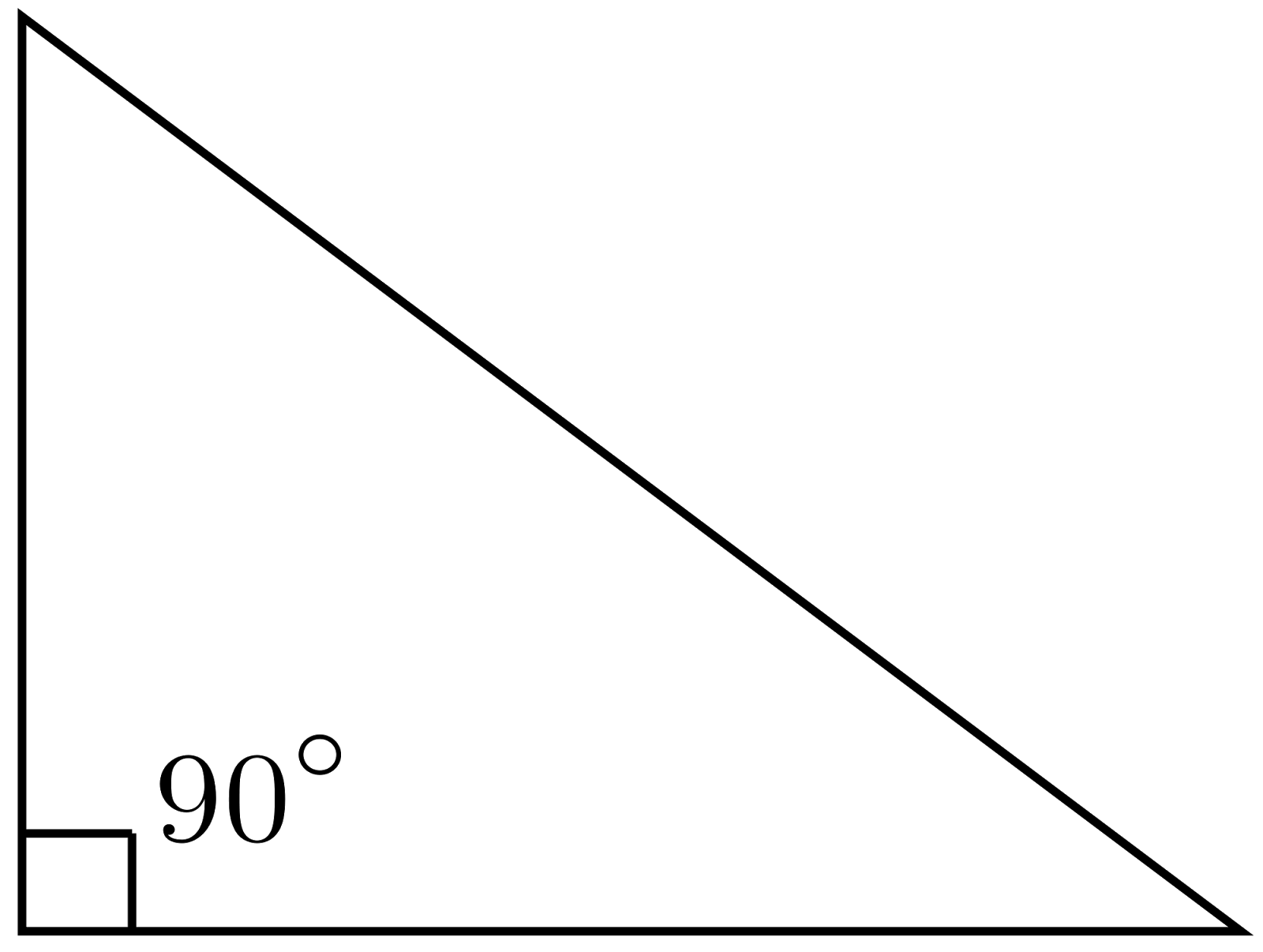
Objective:

Given “Proving The Pythagorean Theorem,” the students will work in groups to determine the area of the sides of a right triangle for three consecutive trials.

**Terms to Know:**

Right Triangle: a triangle with a right angle (90 degrees).

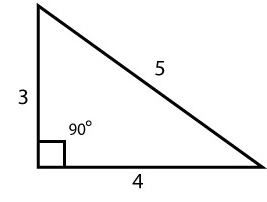
Hypotenuse: the longest side of a right triangle, opposite the right angle.

Leg: either of the two shorter sides of a right triangle.

**The Pythagorean Theorem:**

* When a triangle has a right angle (90 degrees) and squares are made on each of the three sides...then the biggest square has the **exact same area** as the other two squares put together!
* The equation:
* Note:
  + **c** is the **longest side** of the triangle (hypotenuse)
  + **a** and **b** are the legs
  + The area of a square is:

**Question:** Does ?



**Proving the Pythagorean Theorem:**

**First Triangle:**

1. Determine which side is the hypotenuse and which sides are the legs.
2. Line the starbursts along each side. How many starbursts did you use for each side?
3. Create a square on each side of the triangle.
4. Calculate the area of each square.
5. Do the legs add up to equal the hypotenuse?

**Second Triangle:**

1. Determine which side is the hypotenuse and which sides are the legs.
2. Line the starbursts along each side. How many starbursts did you use for each side?
3. Create a square on each side of the triangle.
4. Calculate the area of each square.
5. Do the legs add up to equal the hypotenuse?

**Third Triangle:**

1. Determine which side is the hypotenuse and which sides are the legs.
2. Line the starbursts along each side. How many starbursts did you use for each side?
3. Create a square on each side of the triangle.
4. Calculate the area of each square.
5. Do the legs add up to equal the hypotenuse?