Name _____ Date _____

Pythagorean Theorem

Explore – Answer Key

Materials:

For this investigation, you will need:

- 2-3 sheets of colored cardstock grid paper
- Scissors
- 1 sheet of plain grid paper

Procedure:

1. On the cardstock grid paper, trace and cut out squares with each of the following side lengths:

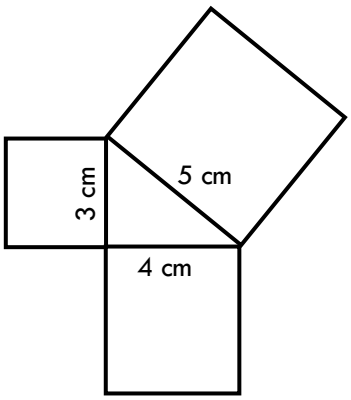
2.5 units	5 units	8 units	12 units
3 units	6 units	9 units	13 units
4 units	6 units	10 units	15 units
5 units	6.5 units	12 units	

   Be sure to label the side lengths of each square.

2. Use three squares at a time to make a triangle as shown below.

3. Place your three squares on the grid paper to see if your triangle is a right triangle. Each square will be used only once.

4. If the triangle is a right triangle, record the lengths of the sides **and** the areas of each of the three squares in the table. One is done for you as an example.



Side Length of Smallest Square (a)	Side Length of Middle Square (b)	Side Length of Largest Square (c)	Area of Smallest Square (a^2)	Area of Middle Square (b^2)	Area of Largest Square (c^2)
3	4	5	9	16	25
2.5	***6***	***6.5***	***6.25***	***36***	***42.25***
6	***8***	***10***	***36***	***64***	***100***
5	***12***	***13***	***25***	***144***	***169***
9	***12***	***15***	***81***	***144***	***225***

Name_____Date_____

Debriefing Questions:

1. What is the relationship between the areas of the squares and the lengths of the sides?
   The area of a square is the length of the side squared:

   $A = s^2$

2. For each right triangle, what is the relationship between the areas of the two smaller squares and the area of the largest square?
   The area of the largest square is equal to the sum of the areas of the two smaller squares.

3. Use *a*, *b*, and c to write an algebraic rule that shows the relationship between the areas of the two smaller squares and the area of the largest square.
   $a^2 + b^2 = c^2$