Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_ Per.:\_\_\_\_

**The Converse of the Pythagorean Theorem**

**C2**

**B2**

**A2**

Is the sum of these two squares , equal to the third square ?

What can you conclude if the above statement is true?

**Pick three numbers, one bigger than the other two (the smaller two could equal, but not necessarily).**

**Then, using a ruler draw the triangles with the numbers you have chosen. Use graph paper. Fill in the table.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Square side lengths** | **A2 + B2** | **C2** | **What’s the relationship between a2+b2 and c2?** | **Do you have a right-triangle?** |
| 3, 4, 5 |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

What does the Pythagorean Theorem say?

The definition of converse is something that has been reversed.

**Key Idea:**

What is the converse of the Pythagorean Theorem? ( You investigated this pattern above.)

If\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_then\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Teacher directions (Another Option )

**Converse of Pythagorean Theorem (using spaghetti)**

You need: graph paper, ruler, protractor, spaghetti

1. Have students record three numbers of the square side lengths on the table provided. (You can also provide them with the side lengths. This method will go faster.) Have students measure these three side lengths with a ruler and mark the spaghetti. Have the students break the spaghetti into those side lengths using cm.

Side lengths: 4, 5, 6 11, 12, 15 9, 12, 15

2. Put the spaghetti together to form a triangle with the designated side lengths. Then with a protractor, measure the largest angle. ( Another Option: Have students trace the spaghetti-created-triangle onto graph paper /paper.) Then with a protractor, measure the LARGEST angle.

3. Record the type of triangle that was formed.

4. Have students calculate c2 and a2 + b2. Have students find a pattern to determine what type of triangle is formed and have them use the Pythagorean Theorem.