Name: Similar Triangle Exploration

Directions: Working with your group, cut out the shapes below and sort them into groups based on similar characteristics.

1. In the space below, explain how you grouped your triangles.

**Label each group of triangles as Set #1, #2 and #3. Line up the triangles so that corresponding angles match up. In set #1 of your triangles, measure every angle.**

**Small Triangle Middle Triangle Large Triangle**

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Angle Measures:

1. What do you notice about the angles in each group figures?

**Pick up the triangles in set #2 and label the sides that are corresponding. Measure the lengths of each side in inches. Record your measurements in the table below.**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Small Triangle in Set #2 | Middle Triangle in Set #2 | Ratio of side b to side a |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Middle Triangle in Set #2 | Large Triangle in Set #2 | Ratio of side b to side a |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Small Triangle in Set #2 | Large Triangle in Set #2 | Ratio of side b to side a |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |
| Length of Corresponding Sides |  |  |  |

1. What is the scale factor for these triangles?

**Now pick up the triangles in set #3. Measure the sides of the LARGEST triangle only and label the triangle with the measurements.**

Next, you are going to label the rest of the triangles in group 1 using the following information. DO NOT USE A RULER!

* The smallest triangle and largest triangle are similar and the scale factor is.
* The middle triangle and largest triangle are similar and the scale factor is  .

**Find the measurements for the sides of the smallest and middle triangle using the information above only!**

|  |  |  |
| --- | --- | --- |
|  | Small Triangle in Set #3 | Middle Triangle in Set #3 |
| Length of Corresponding Sides |  |  |
| Length of Corresponding Sides |  |  |
| Length of Corresponding Sides |  |  |

*Drawing Conclusions:*

1) Write definitions of the following vocabulary terms in your own words:

a) similar figures

b) corresponding angles

c) corresponding sides

d) scale factor

2) List three things you learned about similar figures:

3) The following figures are similar. Fill in the lengths of the sides for the second figure if the scale factor is .

4 ft

3 ft

3 ft

2 ft

4) The following figures are similar. If A = 95°, B = 85°, C = 90°, and D = 90°, find W, X, Y, and Z. 

Z

Y

X

W

B

A