Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Similar Solids**

Monica **Volumes and Surface Areas**

Geometry Period:\_\_\_\_

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

**Directions:** Today you will explore the relationship between the similarity ratio and volumes and surface areas of similar solids. To do this, follow the directions below. **PLEASE USE PENCIL!**

**STEP 1:** Choose a three-dimensional figure (rectangular prism, cylinder, cone, sphere, cube) and sketch it in the space below labeled “Original Solid”. Make up and label the dimensions of your figure (length, width, height, radius, etc.) Do not worry about units.

|  |  |
| --- | --- |
| **Original Solid** | **Similar Solid** |

**STEP 2**: Increase or decrease the dimensions of your solid by choosing a scale factor by which to multiply each dimension. Sketch your new solid, with the new dimensions, in the space labeled “Similar Solid.”

**QUESTION #1:** What is the similarity ratio for your two solids? Write your answer in simplest form.

**QUESTION #2:** Determine the surface area for each solid and show your work in the space below. If necessary, leave your answer in terms of .

**QUESTION #3:** What is the ratio of the of the surface areas? Write your answer in simplest form. How does this ratio relate to the similarity ratio you identified in question #1?

**QUESTION #4:** Determine the volume for each solid and show your work in the space below. If necessary, leave your answer in terms of .

**QUESTION #5:** What is the ratio of the of the volumes? Write your answer in simplest form. How does this ratio relate to the similarity ratio you identified in question #1?

**QUESTION #6:** Discuss these results with your table. Record the results from your tablemates in the space below. Record your own data in the first row.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **SIMILARITY RATIO** | **RATIO OF SURFACE AREAS** | **RATIO OF VOLUMES** |
| **Your data:** |  |  |  |
| **Tablemate’s data:** |  |  |  |
| **Tablemate’s data:** |  |  |  |
| **Tablemate’s data:** |  |  |  |
| **Tablemate’s data:** |  |  |  |