Chemistry Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Unit 1 Period \_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Comparing Units of Volume Lab**

**Purpose:** To find the relationship between measuring volume with a ruler and measuring volume with a graduated cylinder.

**Procedure:** Using one of the boxes provided complete the following.

1. Fill box about half way with water.
2. Measure the volume of water by calculating the length x width x height. – note your units
3. Measure the volume of water by pouring the water in the box into the smallest appropriate graduated cylinder. – note your units
4. Repeat steps above four more times using different amounts of water (but *never fill box to the top*).

**Data:**  Collect your data in the table below. Include units.

|  |  |  |
| --- | --- | --- |
| **Data** | **Ruler Volume (\_\_\_\_\_)** | **Graduated Cylinder****Volume (\_\_\_\_\_)** |
| Trial 1 |  |  |
| Trial 2 |  |  |
| Trial 3 |   |  |
| Trial 4 |  |  |
| Trial 5 |  |  |

**Graph:** Graph your data using the logger pro program.

Include the following on your graph: title, axes labeled with units, and information box displayed that calculates slope

Print a copy of your graph.

When presenting your graph, be prepared to answer the following questions:

1. Did you get a mostly straight line or a curved line?
2. Does this line indicate a direct or indirect relationship?
3. What is the formula for the equation of a line?
4. What does “m” represent? Why does it have a unit of cm3/ml?
5. What is your value (number) for slope?
6. What does “b” represent? What is this value based on your graph? Does it make sense?
7. Write the equation of the line for your graph.
8. What can you conclude about the relationship between volume measured with a ruler and volume measured with a graduated cylinder?
9. What can you conclude about the relationship between the units?