

Name: _____

Chem 10, Section: _____

Prelab Assignment: The Density of Solids and Liquids

1. Mark the correct responses in the following statement:
Density is a physical / chemical property of matter and an intensive / extensive property of matter.
2. What devices will you use to measure the *mass* and the *volume* of water in Part A of this lab?
3. In Part B of this lab you will perform several measurements in order to determine the density of a metal.
 - a. Name this metal. _____
 - b. Describe the technique you will use to measure the volume of this metal.
4. Consider the tabulated data collected by a student for an unknown metal sample. Use this data to calculate the density of the metal (in g/cm^3). Show your work clearly.

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|--|-----------|
| Mass of Empty Beaker | 44.656 g |
| Mass of Beaker and Metal sample | 124.400 g |
| Initial volume of water in cylinder | 12.7 mL |
| Final volume of water and Metal sample | 21.6 mL |

5. In Part C of this lab, you will measure the mass, height and diameter of four cylinders composed of some unknown material.
 - a. Calculate the volume (in cm^3) of a cylinder with a measured height of 11.76 cm and a diameter of 7.22 cm. Show your work clearly.
 - b. Each pair of mass and volume values (for each cylinder) will be plotted on a scatter plot, with mass on the y-axis and volume on the x-axis. A best-fit line will then be applied to the plotted data.
 - How will you calculate the value of the slope of this best-fit line?

 - How will the value of the slope help you identify the unknown material that the cylinders are made of?