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**Prelab Assignment: Introducing Measurements in the Laboratory**

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1. In Part A of this lab, you will measure the dimensions (length, width, diameter) of several geometric shapes.
  - a. Using a ruler, you measure the length of a rectangle to be 12.75 cm and the width to be 3.64 cm. Calculate the area of this rectangle (show work), reporting your answer to the correct number of significant figures.
  
  - b. What is the formula for the area of a circle? \_\_\_\_\_
  
2. In Part B of this lab, you will measure the volume of a sample of water, in milliliters (mL).
  - a. What two measuring instruments will you use to measure the water volume?
  
  - b. Consider the following two volume measurements: 57.7 mL and 57.68 mL. Which of these is the more precise measurement, and why?
  
3. In Part C of this lab, you will measure the mass of several different items, in grams (g).
  - a. What are the two types of balances you will use to measure mass?
  
  - b. An empty beaker has a measured mass of 29.456 g. When some salt is added to the beaker, the combined mass is 36.176 grams. Calculate the mass of the salt only (show work), reporting your answer to the correct number of significant figures.
  
4. In Part D of this lab, you will measure the melting point of an unknown solid, in degrees Celsius (°C).
  - a. Define "melting point".
  
  - b. Is melting point a physical or chemical property of matter? \_\_\_\_\_
  - c. A student measures the melting point of an unknown compound to be 53.5 °C. She later discovers that the compound is chlorothymol, with a true melting point of 58.8 °C. Calculate her percent error (show work) to the correct number of significant figures. The required formula is on page 3 of the Procedure document.
  
  - d. You will use a variety of equipment to measure the melting point of the solid. Sketch a set-up of the equipment on the back of this page, and label all items in your sketch.

