

Unit 1 – Cumulative Practice

Name: _____

Conversions / Significant Figures / Density / % Error / Measurements

I. CONVERSIONS (*Metric & Non-Metric*) – Perform the following conversions by showing the FACTOR LABEL METHOD. Show units in answer!

1) 20.5 kg = ___?___ dg

3) 10.5 atm = ___?___ mmHg (*1 atm = 760 mmHg*)

2) 430 mL = ___?___ L (*Scientific Notation*)

4) 10.0 L = ___?___ mol (*1 mol = 22.4 L*)

II. SIGNIFICANT FIGURES - Determine the correct number of significant figures (sig figs) in each measurement below.

5) 5306 g = _____

7) 1.0×10^{-3} ms = _____

6) 550 sec = _____

8) 6.02×10^{23} molecules = _____

III. ROUNDING - Round the following numbers to the indicated number of significant figures.

9) 0.07782 → (3 s.f.) _____ (*expressed in scientific notation*)

10) 140.85 → (2 s.f.) _____ (*expressed in scientific notation*)

IV. DENSITY / % ERROR – Show all of your work for full credit.

11) A. What is the density of a metal that has a mass of 36.8 grams and a volume of 4.00 cm³?

B. The accepted value of this metal is 8.90 g/cm³. What is the measurement's percent error?

C. What is the identity of this metal? (*Hint: Look at your reference table*)

12) A. The water level in a graduated cylinder is 25.0 mL. When a solid is put into the graduated cylinder, the new volume is 31.0 mL. If the solid has a mass of 27.9 grams, what is its density?

B. The accepted value of this solid is 4.5 g/mL ($1\text{ mL} = 1\text{ cm}^3$). What is the percent error?

C. What is the identity of this solid? (*Hint: Look at your reference table*)

V. LAB MEASUREMENTS – Record the following measurements to the correct number of significant figures (sig figs). Include proper units (mL or cm).

What is the reading in milliliters for each graduated cylinder?

