Name _____ Date_____ Pd____

METRIC DIMENSIONAL ANALYSIS Practice 2

From http://www2.hoover.k12.al.us/schools/hhs/faculty/skelley/Unit%201/DIMENSIONAL%20ANALYSIS%20Practice%201%20and%202.pdf

Show all of the following unit conversion problems using the factor label method (dimensional analysis). Set up the problems clearly, round answers to correct significant digits and all answers must have units.

Cubed Units: 1mL = 1cm^3 and 1L = 1dm^3

1. How many cubic meters (m^3) are there in 4862 cubic centimeters (cm^3)?

2. How many cubic decimeters (dm^3) are there in 1.853 x 10^4 cubic meters (m^3)?

3. Calculate the number of cubic centimeters (cm^3) in 18 cubic meters (m^3).

4. How many cubic kilometers (km^3) are there in 4.275 x 10^5 cubic meters (m^3)?

5. The volume of a sample of water is found to be 186.3 cubic centimeters (cm^3). What is the volume of the sample in cubic millimeters (mm^3)?

Volume

1. Convert 15.9 cm^3 to L. Remember, 1mL = 1cm^3 and 1L = 1dm^3

2. Convert 555 deciliters (dL) to dm^3.

3. Convert 3.5 dm^3 to mL.

4. Convert 49 L to cm^3.

Derived Units

1. Convert 57 g/cm^3 to kg/dm^3.

2. Convert 17.6 m/s to cm/s

3. Convert 98.5 km/hr to m/s.

Density = mass/volume

1. What is the volume, in milliliters, of a sample of helium that has a mass of 1.53 x10^{-3}g, given that the density is 0.17847 g/L?

2. What is the volume, in decimeters, of a sample of helium that has a mass of 1.93 x10^{-2}g, given that the density is 0.17847 g/L?

3. What is the mass, in grams, of a sample of helium that has a volume of 2.4 x10^{2}mL, given that the density is 0.17847 g/L?

4. Calculate the volume of a sample of aluminum that has a mass of 7.083kg. The density of aluminum is 2.70g/cm^3.