

Name: _____

Band: _____

HW 3.2

This Homework is to be done in part in class, and in part at home. Attach your work to this handout. Your answers for certain problems must be placed here: Don't forget your units!

1a _____ 1b _____ 1c _____ 2 _____
3 _____ 4 _____ 5 _____ 6 _____
7 _____ 8 _____ 9 _____ 10 _____
11 _____ 12 _____ 13 a _____ 13 b _____
14 a _____ 14 b _____

1) A silver dollar weighs about 0.943 ounces. There are 28.375 g in 1 ounce. Express this weight in grams (1a), kilograms (1b) and milligrams (1c).

2) The **density** of Alcohol is 0.8 g/mL. What is the mass of 50 mL of alcohol?

3) Calculate the **density** of a block of wood that has a mass of 750 Kg and is 25 cm x 0.1 m x 50.0 m.

4) The **density** of concentrated sulfuric acid is 1.85 g/mL. What volume of the acid would have a mass of 74.0 g?

5) If 2.02 g of hydrogen gas occupies 22.4 L, calculate the **density** of hydrogen gas in g / mL .

6) Body **temperature** on the average is 98.6°F. What temperature is this in °C? (6a) In °K ? (6b)

7) (**conversion**) How many millimeters are in a kilometer?

8) How many **degrees** are there between 0°C and 0°K?

9) (**temperature**) Which is colder, -100°C or -145°F?

10) How many **degrees** Centigrade below the boiling point of water is 250°K ?

11) Concentrated Sulfuric acid has a **density** of 1.85 g/mL. Calculate the mass, in grams, of 1.00 liter of this acid.

12) What is the volume of a piece of sulfur (**Density** = 2.07 g / mL) with a mass of 130 grams ?

13) CHALLENGE. VALUE: 2 HW problems. The mean diameter of the earth is 12,472 Km, and has a mass of 5.9736×10^{24} Kg. What is the **density** of planet earth in g/cm³? $\frac{4}{3} \pi r^3$ is the volume of a sphere. Remember you have been given diameter, not radius of the earth. *Show your work. Step 1 (13a): Density with units given. Step 2 (13b): convert Density in Kg/Km³ to g/cm³. Both Step 1 and Step 2 have answer boxes, above.*

14) Using the information from the above problem, and knowing that the average distance between earth and moon is 30 times the earth's diameter, how many meters are there between earth and moon (**14a**)? How many centimeters are there between earth and moon (**14b**)? How many gold atoms could you stack between earth and moon, knowing that the width of a gold atom is 100 pm (**14c**)?