AP Chemistry Pre-Class Content Review

Complete this pre-class exercise to refresh your memory about some of the foundational calculations and concepts we will use in AP Chem. You may use any resources you like to help you.

1. What is another name for the value 6.022 x 1023?

1. Mole
2. Avagadro’s principle
3. Dimple
4. g/mol
5. A whole lotta somthin’

2. A sample of cesium with a mass of 132.9 g contains the same number of atoms as a sample of molybdenum with a mass of 85.94 g.

1. True
2. False

3. A sample of an element with a mass equal to that element’s average atomic mass in amu contains 1 mol of atoms.

1. True
2. False

4. Atomic masses are represented on the periodic table using what unit?

1. Grams
2. Kilograms
3. Atomic mass units
4. Moles

5. The mass in grams of 1 mole of a substance is knows as:

1. Avagadro’s Number
2. Atomic Mass Unit
3. Individual Mass Ratio
4. Molar Mass

6. If there is a sample of gallium that has a mass of 69,720 mg, will a sample of gold that contains the same number of atoms have a greater or lesser mass? Why?

7. A 207.2 g sample of lead, contains how many atoms?

8. Calculate the number of atoms in a 25.0 g sample of calcium.

9. Calculate the molar mass of calcium sulfate, CaSO4**.**

10. Complete the following table:

**Mass of Sample Moles of Sample Atoms in Sample**

5000 mg Al \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_ 0.00250 mol Fe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_ 2.6 x 1024 atoms Cu

11. A hydocarbaon (compound containing hydrogen and carbon) was found to be 20% hydrogen by weight. If 1 mole of the hydrocarbon has a compound mola mass of 30 g, what is its molecular formula?

12. For the reaction below, calculate how many moles of each product would be produced with 0.50 moles of the first reactant present.

Al(s) + HCl(aq) -> AlCl3(aq) + H2(g)

AlCl3\_\_\_\_\_\_\_\_\_\_\_ H2\_\_\_\_\_\_\_\_\_\_\_\_

13. Based on using 35 g C6H10 and 45 g O2 in the following reaction:

2C6H10 + 17O2 🡪 12CO2 + 10H2O

a.Determine what the **limiting reactant** is.

b. What is the **mass of CO2** produced?

c. If 35 g of CO2 are actually formed from this reaction, what is the percent yield of this reaction?