**EZPZ Unit 6 Review: Moles and Math**

**Part 1:** Fill out the chart

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| --- | --- | --- | --- |
| Name | Ionic or Covalent? | Formula | Random question |
| tricarbon octahydride |  |  | What’s the molar mass of this compound? |
| aluminum chloride |  |  | What’s the molar mass of this compound? |
| potassium carbonate |  |  | How many moles of ions are in this compound? |
| tin (IV) chlorate |  |  | What is the % composition of tin? |
| boron trifluoride |  |  | What’s the molar mass of this compound? |
| calcium phosphate heptahydrate |  |  | What is the % composition of water? |

**Part 2**: Mole Math

1. How many formula units are in 0.429 mol of sodium bromide?
2. How many atoms of oxygen are in 78.21g of magnesium nitrite?
3. How many ammonium ion (NH4)1+ are there in 396.24 g of ammonium sulfate?
4. What is the mass in grams of 3.17 moles of chlorine?
5. How many grams are in 3.94x1024 molecules of diphosphrous tetroxide?
6. How many nitride ions are in aluminum nitride?
7. What is the number of moles in 4.17x1023 formulas units of copper (II) chlorite?
8. Calculate the number of carbon atoms in 25.0 grams of isopropyl alcohol (C3H8O).
9. Which sample represents the greatest number of moles?

a) 44.01 g CO2

b) 1.0 moles C3H8

c) 6.022 x 1023 molecules C4H10

d) 18.02 g H2O

e) All of the sample have the same number of moles.

1. Which of the following contains the largest number of molecules?
2. 10.0 g CH4
3. 10.0 g C2H6
4. 10.0 g SO2
5. 10.0 g Xe

**Part 3**: Empirical & Molecular

1. What is the empirical formula of C8H16?

1. What is the empirical formula of N3H6C3H12?
2. An unknown compound contains the following percents by mass: C: 60.86%, H: 5.83%, O: 23.16%, and N: 10.14%. Find the empirical formula.

1. A compound containing nitrogen and oxygen is decomposed in the laboratory and produces 24.5 g nitrogen and 70.0 g oxygen. Calculate the empirical formula of the compound.
2. Butanedione—a main component responsible for the smell and taste of butter and cheese—contains the elements carbon, hydrogen, and oxygen. The empirical formula of butanedione is C2H3O, and its molar mass is 86.09 g/mol. Find its molecular formula.

1. The empirical formula of a compound is CH2O. Its molecular mass is 60 g/mol. What is its molecular formula?
2. A compound with the percent composition shown next has a molar mass of 60.10 g/mol. Determine its molecular formula. C: 39.97%, H: 13.41%, N: 46.62%