

Chapter 10 Review

Name _____

Period _____ Date _____

Classify each of these statements as always true, AT, sometimes true, ST, or never true, NT.

- _____ 1. A mole of a pure substance contains 6.02×10^{23} atoms.
- _____ 2. The representative particle of a compound is a molecule.
- _____ 3. A mole of CCl_4 is composed of one mole of carbon and 4 mole of chlorine.
- _____ 4. One mole of gas occupies 22.4 L
- _____ 5. The formula of methane is CH_4 . If methane contains 75% carbon, then 100 grams of methane contains 75 grams of carbon.
- _____ 6. The formula for methane, CH_4 , is both an empirical and molecular formula.
- _____ 7. The empirical formula of $\text{C}_6\text{H}_{12}\text{O}_6$ is $\text{C}_2\text{H}_4\text{O}_2$.

Solve the following problems. Show your work and include the units

8. How many moles is 9.3×10^{15} atoms of Pb?
9. How many representative particles are in 2.73×10^{-2} moles of MgI?
10. What is the molar mass of C_2H_6 ?
11. Find the mass of each of the following
- A. 3.65×10^{-2} mol K_2SO_4
 - B. 2.61×10^{22} molecules H_2O_2
 - C. 0.60 mol CH_4
 - D. 0.70 L Kr at STP
12. What is the density of N_2O gas at STP?

13. You have 3.8 grams of CO_2 . Convert that to:

A. Moles

B. Molecules

C. Atoms

D. Liters at STP

E. Find the density

14. Determine the percent composition of CaSO_4 .

15. How many grams of calcium would there be in 25.3 g of CaSO_4 ?

16. A compound is 43.2 % copper, 24.1 % chlorine and 32.7% oxygen. What is its empirical formula?

17. A gas is found to contain 78.1 % B and 21.9% H. It has a density of 1.23 g/L at STP. What is its

a. empirical formula?

b. molar mass?

c. molecular formula?