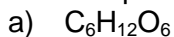


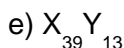
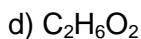
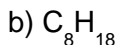
Name _____

Empirical and Molecular Formulas Worksheet

1. Find the percent composition by mass of each element in the following formulas.



2. Write the empirical formula for the following compounds.



3. Benzene, a non-polar solvent used for many applications in industry, and a major component in many organic compounds has the following percent composition:

$$C = 92.3\% \quad H = 7.8\%$$

a. Find Benzene's empirical formula.

b. Find the Molecular formula of benzene if the entire formula mass is 78.12 g/mol

4. An unknown compound was found to have a percent composition as follows:

47.0 % potassium, 14.5 % carbon, and 38.5 % oxygen. What is its empirical formula? If the true molar mass of the compound is 166.22 g/mol, what is its molecular formula?

Name _____

Empirical and Molecular Formulas Worksheet

5. An unknown sugar is found to have a formula mass of 180.18 g/mol. The sugar contains: 40.0 % C, 6.7 % H and 53.3 % O.

a. Find the empirical and molecular formula of this sugar.

6. Tryptophan – the chemical in turkey that is believed to make you sleepy – has the empirical formula $C_{11}H_{12}N_2O_2$.

Find the molecular formula if the formula mass is 204.25 g/mol.

7. Caffeine is made of 49.48 % C, 5.19% H, 16.48% O and 28.8% N. Find the molecular formula of Caffeine if its overall molecular mass is 194.22 g/mol

8. Hydrogen peroxide is 5.93 % H and 94.07 % O. Find the molecular formula of hydrogen peroxide given it has an overall formula mass of 34 g/mol.

9. A strong oxidizing agent and rocket propellant has a % composition of 30.43% N and 69.57 % O. Find the molecular formula if its formula mass is 92.0 g/mol