

Name \_\_\_\_\_ Date/Period \_\_\_\_\_

**Worksheet** Percent Composition, Empirical & Molecular Formula, & Molar Mass

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Solve the following problems. Show your work, and always include units where needed.

1. A compound is found to contain 36.5% Na, 25.4% S, and 38.1% O. Find its empirical formula.



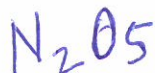
2. Find the empirical formula of a compound that is 53.7% iron and 46.3% sulfur.



3. Analysis of a sample of a compound indicates that it has 1.04 g K, 0.70 g Cr, and 0.86 g O. What is its empirical formula?



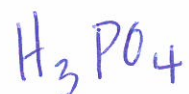
4. If 4.04 g of nitrogen combine with 11.46 g of oxygen to produce a compound with a molar mass of 108.0g, what is the molecular formula of this compound?



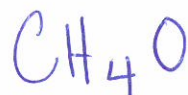
5. The molar mass of a compound is 92 g. Analysis of the sample indicates that it contains 0.606 g N and 1.390 g O. Find the compound's molecular formula.



6. An acid commonly used in the automotive industry is shown to be 31.6% phosphorous, 3.1% hydrogen, and 63.5% oxygen. Determine the empirical formula of this acid.



7. A solvent is found to be 50.0% oxygen, 37.5% carbon, and 12.5% hydrogen. What is the empirical formula of this solvent?



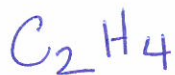
8. A particular sugar is determined to have the following composition: 40.0% carbon, 6.7% hydrogen, and 53.5% oxygen. Determine the empirical formula of this sugar molecule.



9. If the molar mass of the sugar in question #8 is 180.0 g, find the molecular formula of the sugar.



10. Ethene, a gas used extensively in preparing plastics and other polymers, has a composition of 85.7% carbon and 14.3% hydrogen. Its molar mass is 28 g. Find the molecular formula for ethane.



Find the molar mass of each molecule.



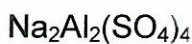
158.03 g/mol



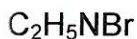
383.78 g/mol.



162.20 g/mol.



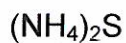
484.18 g/mol



122.97 g/mol



497.2 g/mol



68.14 g/mol



28 g/mol