Empirical and Molecular Formula Worksheet

Write the empirical formula for the following compounds.

1) C6H6

2) C8H18

3) WO2

4) C2H6O2

5) X39Y13

6) A compound with an empirical formula of C2OH4 and a molar mass of 88 grams per mole. What is the molecular formula of this compound?

7) A compound with an empirical formula of C4H4O and a molar mass of 136 grams per mole. What is the molecular formula of this compound?

8) A compound with an empirical formula of CFBrO and a molar mass of 254.7 grams per mole. What is the molecular formula of this compound?

9) A compound with an empirical formula of C2H8N and a molar mass of 46 grams per mole. What is the molecular formula of this compound?

10) A well-known reagent in analytical chemistry, dimethylglyoxime, has the empirical formula C2H4NO. If its molar mass is 116.1 g/mol, what is the molecular formula of the compound?

12. Nitrogen and oxygen form an extensive series of oxides with the general formula NxOy. One of them is a blue solid that comes apart, reversibly, in the gas phase. It contains 36.84% N. What is the empirical formula of this oxide?

13. A sample of indium chloride weighing 0.5000 g is found to contain 0.2404 g of chlorine. What is the empirical formula of the indium compound?

14. 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?