









## Empirical and Molecular Formula Worksheet ANSWER KEY

Write the empirical formula for the following compounds.

- 1)  $C_6H_6$  **CH**
- 6)  $C_8H_{18}$   **$C_4H_9$**
- 7)  $WO_2$   **$WO_2$**
- 8)  $C_2H_6O_2$   **$CH_3O$**
- 9)  $X_{39}Y_{13}$   **$X_3Y$**
- 6) A compound with an empirical formula of  $C_2OH_4$  and a molar mass of 88 grams per mole. What is the molecular formula of this compound?  **$C_4O_2H_8$**  
- 7) A compound with an empirical formula of  $C_4H_4O$  and a molar mass of 136 grams per mole. What is the molecular formula of this compound?  **$C_8H_8O_2$**  
- 8) A compound with an empirical formula of  $CFBrO$  and a molar mass of 253.8 grams per mole. What is the molecular formula of this compound?  **$C_2F_2Br_2O_2$**  
- 9) A compound with an empirical formula of  $C_2H_8N$  and a molar mass of 46 grams per mole. What is the molecular formula of this compound?  **$C_2H_8N$**  
- 10) A well-known reagent in analytical chemistry, dimethylglyoxime, has the empirical formula  $C_2H_4NO$ . If its molar mass is 116.1 g/mol, what is the molecular formula of the compound?  **$C_4H_8N_2O_2$**  
12. A certain blue solid contains 36.84% N and 63.16% O. What is the empirical formula of this compound? **The ratios are  $N_{1.00}O_{1.50}$ . Since 1.50 is not close to a whole number, we multiply *both* subscripts by 2. The empirical formula is thus  $N_2O_3$ . (The name is dinitrogen trioxide.)** 
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?  **$InCl_3$**  
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?  **$K_2C_2O_4$**  
15. Rubbing alcohol was found to contain 60.0 % carbon, 13.4 % hydrogen, and the remaining mass was due to oxygen. What is the empirical formula of rubbing alcohol?  **$C_3H_8O$**  