**Calculating Molecular Formulas**

How to Calculate Molecular Formulas:

**Practice Problems**

Answer the following questions below. **BOX YOUR FINAL ANSWERS AND SHOW ALL YOUR WORK!!! YOU WILL NOT GET CREDIT IF YOU DO NOT SHOW YOUR WORK.**

1. Benzene, a non-polar solvent used for many applications in industry, and a major component in many organic compounds has an empirical formula of CH. Find the molecular formula of benzene if the entire formula mass is 78.12 g/mol.

2. 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.

1. Find the empirical formula of this sugar.
2. Find molecular formula of this sugar using your answer from above.

3. Tryptophan – the chemical in turkey that is believed to make you sleepy – has the empirical formula C11H12N2O2. Find the molecular formula if the formula mass is 204.25 g/mol.

4. Caffeine is made of 49.48 % C, 5.19% H, 16.48% O and 28.8% N. Find the molecular mass of Caffeine if its overall molecular mass is 194.22 g/mol. (HINT: You must calculate the EMPIRICAL FORMULA FIRST!)

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