Percent Composition and Empirical & Molecular Formulas 1

1. What is the percent composition all atoms in aluminum chlorite?

2. A white powder is found to contain 43.64% phosphorous and 56.56% oxygen. The molar mass of the compound is 283.88 g/mol. What are the empirical and molecular formulas of this compound? Name this compound.

3. A 10.000-g sample of a compound contains 7.165g chlorine, 2.427g carbon, and 0.407g hydrogen, and the compound has a molecular mass of approximately 100 g/mol. What is the molecular formula of the compound?
Combustion Analysis 1

1. A 4.24-mg sample of a carboxylic acid (composed of only C, H, and O) is burned. The reaction produces 6.21 mg of carbon dioxide and 2.54 mg of water. The compound was found to have a molar mass of ~180 g/mol in a separate experiment. What is the molecular formula of the compound?

2. A 3.87-mg sample of ascorbic acid (containing C, H, and O only) produces 5.80 mg CO\textsubscript{2} and 1.58 mg H\textsubscript{2}O on combustion. What is the empirical formula of ascorbic acid?

3. A compound consisting of C, H and O only, has a molar mass of 660 g/mol.

   Combustion of 0.1000 g of this compound caused a 0.2921 g increase in the mass of the CO\textsubscript{2} absorber and a 0.0951 g increase in the mass of the H\textsubscript{2}O absorber.

   What is the empirical formula of the compound?

   What is the molecular formula of the compound?