

CH 151 Extra Credit Assignment

One point per question, up to five points total.

Include the final answers to each problem on this sheet at the bottom. **On separate paper, provide detailed steps showing all work required to solve each problem. Staple these page(s) to the back of this sheet.**

This assignment is due at **8 AM on Tuesday, July 10**. Late assignments will not be accepted.

The questions:

1. Calculate the weight percent of lead in PbS, lead(II) sulfide. What mass of lead (in grams) is present in 10.0 g of PbS?
 2. Succinic acid occurs in fungi and lichens. Its empirical formula is $C_2H_3O_2$ and its molar mass is 118.1 g/mol. What is its molecular formula?
 3. A large family of boron-hydrogen compounds has the general formula B_xH_y . One member of this family contains 88.5% B; the remainder is hydrogen. Which of the following is its empirical formula: BH_2 , BH_3 , B_2H_5 , B_5H_7 , or B_5H_{11} ?
 4. If Epsom salt, $MgSO_4 \cdot x H_2O$, is heated to 250 °C, all the water of hydration is lost. On heating a 1.687 g sample of the hydrate, 0.824 g of $MgSO_4$ remains. How many molecules of water occur per formula unit of $MgSO_4$?
 5. Fluorocarbonyl hypofluorite is composed of 14.6% C, 39.0% O and 46.3% F. If the molar mass of the compound is 82 g/mol, determine the empirical and molecular formulas for the compound.
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The answers: (provide all work on separate pages, stapled to the back of this sheet)

Answer #1: Weight percent Pb in PbS: _____ Mass of lead (g): _____

Answer #2: Molecular Formula: _____

Answer #3: Empirical Formula: _____

Answer #4: Number of water molecules per $MgSO_4$: _____

Answer #5: Empirical Formula: _____
Molecular Formula: _____