Percent Composition Problems

1. A 5.00 g sample of a compound was found to contain 1.93 g carbon, 0.49 g hydrogen and 2.58 g sulfur. What is the empirical formula of the compound?

2. What is the percentage composition of each element in the compound tetrahydrocannabinol (THC), which has the formula $C_{21}H_{30}O_2$?

3. A sample of a compound was found to contain 42.56 g of palladium (Pd) and 0.80 g of hydrogen. If the molar mass of the compound is 216.8 g/mol, what is the molecular formula of the compound?
4. Find the empirical formula of a compound that contains 30.45% nitrogen and 69.55% oxygen.

5. A compound containing only boron and iodine is known to have a molar mass of 391.5 g/mol. A 310.8 g sample of this compound was found to contain 302.2 g of iodine. What is the molecular formula of this compound?

6. A compound containing only carbon and hydrogen has a molecular mass of 114.26 u. If one mole of the compound contains 18.17 g of hydrogen, what is its molecular formula?