Chemical Formula Calculations

1] What is the percentage by mass composition of Iron (III) oxide?

2] Calculate the molar mass of C₃H₅N₃O₉ (Nitroglycerin, an explosive)

3] How many atoms are found in 1.55 grams in chlorine gas?

4] When silver was selling for $16.00 per ounce, how many silver atoms could you buy for 10.00 dollars?

5] How many grams of carbon are there in 14.0 g of Pb(C₂H₅)₄ (tetraethyllead, a gasoline additive)?

6] A mixture contains 10.00 g of NaBr and 5.00 g of BaBr₂. What is the total number of moles of bromide ions in the mixture?

7] Determine the moles of sodium in 7.22 x 10¹⁰ kg of Na₂S₂O₃

8] How many atoms of Zn would contain the same number of grams as 7.54 x 10⁻⁶ mg of Cu?
9] What is the total number of atoms in 8.00 mole aluminum dichromate?

10] A typical aspirin tablet contains 5.0 grains of acetyl salicylic acid, $C_9H_8O_4$. How many moles of acetyl salicylic acid are in a single tablet? (0.0648 g = 1.00 grain)

11] 4.159 g of a iron and sulfur containing compound is decomposed to give 2.233 g of iron. What is the empirical formula?

12] The percent composition of a compound is 20.0% C, 2.2% H, and 77.8% Cl. The molar mass of the compound is 182.0 g/mol
   a. Find the empirical formula

   b. Find the molecular formula