

## Practice: Empirical and Molecular Formulas

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Complete the following on a piece of loose leaf.

Find the empirical or molecular formula for the following questions. Show all work 😊

1. If a compound has a composition of 40.0% carbon, 6.714% hydrogen, and 53.29% oxygen, determine the **empirical** formula of the compound.
2. Experimental analysis determined that a compound contained 7.30g of sodium, 5.08g of sulphur, and 7.62g of oxygen. What is the **empirical** formula for this compound?
3. Analyses of a compound shows 31.1% Fe, 15.56% N, and 53.33% O. What is the **empirical** formula?
4. A compound has the following composition: 19.3% Na, 26.9% S and 53.8% O. What is the **empirical** formula? If the molecular mass is 238g/mol, what is the **molecular** formula?
5. If a compound contains 71.65% chlorine, 24.27% carbon, and 4.07% hydrogen, determine the **molecular** formula if the molar mass is 98.96g/mol.
6. A compound consists of Fe and Cl. The total mass of the compound is 34.04g. 15g of the compound is Fe. Calculate the **empirical** formula for the compound.
7. 24 g of C combine with 6g of H to make a chemical compound. Calculate the **empirical** formula for the compound. If the molar mass of the compound is 30g/mol, calculate the **molecular** formula.

Answers:

- 1) CH<sub>2</sub>O   2) Na<sub>2</sub>SO<sub>3</sub>   3) FeN<sub>2</sub>O<sub>6</sub>   4) NaSO<sub>4</sub>  
Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>   5) C<sub>2</sub>H<sub>4</sub>Cl<sub>2</sub>   6) FeCl<sub>2</sub>   7) CH<sub>3</sub>  
C<sub>2</sub>H<sub>6</sub>