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| **Empirical/Molecular Formula** | Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

1. What is an empirical formula? How is it different from a molecular formula?

1. State the empirical formula for each of the following.
2. C6H14
3. Fe2O3
4. K2C2O4
5. A sample of a compound is 50.0% sulfur and 50.0% oxygen by mass. What is the empirical formula?
6. A sample of a compound is 52.9% aluminum. The rest is oxygen. What is the empirical formula
7. A compound is 48.65% carbon, 8.11 % hydrogen and 43.24 % oxygen. Determine the empirical formula.
8. Vinegar is a dilute solution of acetic acid. The molar mass of acetic acid is 60.0 g/mol and it has an empirical formula of CH2O. What is the molecular formula of acetic acid?
9. A compound has an empirical formula of C3H4. Which of the following are possible molar masses of the compound? 20 g/mol, 55 g/mol, 80 g/mol, 120 g/mol.
10. A compound contains 9.93 g C, 58.6 g Cl, and 31.4 g F. Determine its empirical formula.
11. A compound has an empirical formula of CH2 and a molar mass of 42.0 g/mol. Determine its molecular formula.
12. The empirical formula of a compound is P2O5. Its molecular mass is about 284 grams. What is the molecular formula?
13. A small sample of antifreeze was analyzed. It contained 4.51 g C, 1.13 g H and 6.01 g O. It was determined that the molar mass is 62.0 g/mol. What is the molecular formula of antifreeze?
14. A hydrocarbon is a compound containing only carbon and hydrogen. One particular hydrocarbon is 92.29% carbon by mass. If the compound’s molecular mass is 78.0 g/mol then what is its molecular formula?