1. Match the empirical formula to its corresponding molecular formula by connecting them with a line:

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| --- | --- |
| Two white spheres connected to one black sphere.A. | Two white spheres connected to two red spheres. The red spheres are connected to each other.1. |
| Two red spheres connected to one blue sphere.B. | Three white spheres connected to one black sphere, which is connected to another black sphere that is connected to two red spheres. There is a white sphere connected to one of the red spheres.2. |
| One white sphere connected to one red sphere.C. | Two blue spheres are connected. Each blue sphere has two red spheres connected to it for a total of four red spheres.3. |
| A black sphere with one red and two white spheres connected to it.D. | Two black spheres connected, each with two white spheres connected to it for a total of four white spheres.4. |

1. Determine whether each formula is an empirical formula. If it isn’t an empirical formula, write the empirical formula:
   1. C3H5O
   2. HCl
   3. C2H2
   4. C12H22O11
   5. C14H28O2
2. Choose one of the empirical/molecular formula sets from question 1 and calculate the percent composition for each element in the molecules. Compare the percent compositions and note any observations. Show all your work.

* For example, if A1 was one of your empirical and molecular formula sets, you would calculate the percent composition for all elements in each compound and compare them.

1. A compound contains 69.94% iron and 30.06% oxygen. What is its empirical formula?
2. A compound contains 3.744 g C, 1.889 g H, and 4.367 g N. What is its empirical formula?