

1. A chemist combines 63.55 grams of copper with 100.00 grams of chlorine gas. The result is 134.45 grams of a light blue powder and some leftover chlorine.
  - a. How much copper and chlorine are needed to make 500.0 grams of the light blue powder with no leftovers?
  - b. Another chemist combines 100.00 grams of copper with 111.57 grams of chlorine to make a solid. There are no leftovers. Is this the same compound as the light blue powder made in "a?"
  - c. Another chemist combines 63.55 grams of copper with 35.45 grams of chlorine gas to make a solid. There are no leftovers. Is this the same compound as what was made in "a."?
  - d. If the compound made in "a" is composed of one copper atom and two chlorine atoms, how many chlorine atoms are in the compound made in "c?"
  
2. A chemist combines 30.00 grams of silicon with 32.00 grams of oxygen. The result is 60.09 grams of a solid and some leftover silicon. How much silicon and oxygen should she use to make 150.00 grams of the solid with no leftovers?
  
3. The compound in #2 is composed of one silicon atom and two oxygen atoms. If a chemist starts with 28.09 g of silicon, how many grams of oxygen would he need to use to make a compound that is composed of one silicon atom and one oxygen atom?