

Read pages 464 – 471.

1. How is a chemical formula different than an empirical formula?
2. Which element is usually written first in a chemical formula?
3. Identify the oxidation numbers for each atom in the following compounds:
 - a. CaF_2
 - b. PO_2
 - c. MgH_2
 - d. Li_2S
 - e. FeBr_2
 - f. Na_3N
4. For the following elements and ions, use the oxidation numbers to write the formula for the molecule made by combining them:
 - a. aluminum and chlorine
 - b. carbon and fluorine
 - c. oxygen and potassium
 - d. the phosphate ion and sodium
5. What is a polyatomic ion?
6. What is a binary compound?
7. Write the names for the following ionic compounds:
 - a. NaBr
 - b. Li_2O
 - c. FeS
 - d. $\text{Cu}(\text{NO}_3)_2$
 - e. $\text{Mg}(\text{OH})_2$
 - f. CaCO_3
8. Write the names for the following covalent compounds:
 - a. NF_3
 - b. CCl_4
 - c. S_3Cl_2
 - d. N_2O_3

Read pages 472 – 476.

1. List five signs that indicate a chemical change may have taken place.
2. For the equation, $\text{NaOH} + \text{Cl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$:
 - a. Which chemicals are the reactants?
 - b. Which chemicals are the products?
3. Why do chemical equations have to be balanced?
4. What is the solid product that settles out of a solution called?
5. The chemical formula for copper nitrate is $\text{Cu}(\text{NO}_3)_2$.
 - a. How many copper atoms does the molecule have?
 - b. How many nitrogen atoms does it have?
 - c. How many oxygen atoms does it have?
6. Balance the following chemical equations:
 - a. $\text{Pb} + \text{O}_2 \rightarrow \text{PbO}$
 - b. $\text{FeBr}_3 + \text{Cl}_2 \rightarrow \text{FeCl}_3 + \text{Br}_2$
 - c. $\text{H}_2\text{O}_2 \rightarrow \text{H}_2\text{O} + \text{O}_2$
 - d. $\text{Na}_2\text{CO}_3 + \text{Ca}(\text{OH})_2 \rightarrow \text{NaOH} + \text{CaCO}_3$

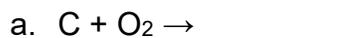
Bonus: + 5 points

Write the balanced chemical equation for this reaction:

Calcium hydroxide combines with hydrogen chloride to make calcium chloride and water.

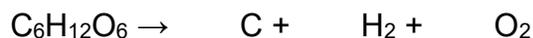
Read pages 477 – 481.

1. Write the product for each composition reaction:



2. Write the products for this decomposition reaction: $HgS \rightarrow$ _____ + _____

3. Determine the number of molecules of each of the product formed for this decomposition reaction:



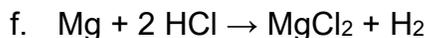
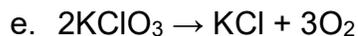
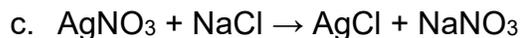
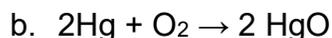
4. What must usually be added to make a compound decompose?

5. What area of chemistry involved the study of energy changes in a reaction?

6. A reaction that gives off heat is called _____.

7. A reaction that absorbs heat is called _____.

8. Classify each of the following reactions as composition, decomposition, single replacement, or double replacement:



BONUS:

What is MTBE?

What is its chemical formula?

What is it used for?

What is one problem associated with MTBE?