

Chemical Equations (Chapter 9) Test Review

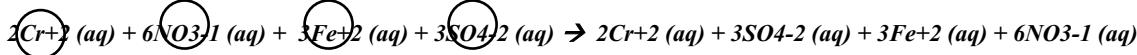
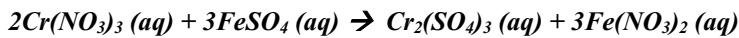
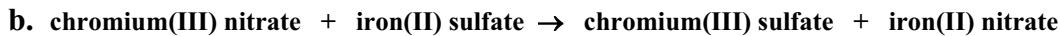
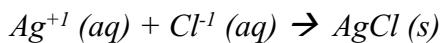
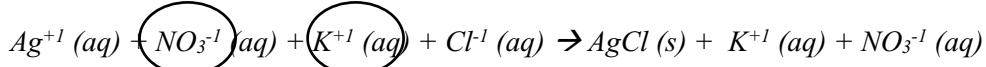
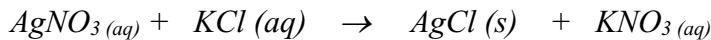
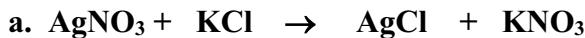
1. How should hydrogen, oxygen, nitrogen, fluorine, chlorine, iodine, and bromine be written when there are represented in elemental form in a chemical equation? Why? *with a “2” subscript (these elements are diatomic in their elemental state)*
2. On the diagram below, identify where the subscript is and where the coefficient is.
 $(\text{coefficient})2\text{MgCl}_2(\text{subscript})$
3. How does the law of conservation of mass relate to balancing equations? *the number of atoms cannot be gained or lost, they change form from reactant to product but remain equal*
4. Identify which type of chemical reaction fits the following general equations:
 - a. $\text{A} + \text{X} \rightarrow \text{AX}$ Synthesis _____
 - b. $\text{AX} \rightarrow \text{A} + \text{X}$ Decomposition _____
 - c. $\text{A} + \text{BX} \rightarrow \text{B} + \text{AX}$ Single Replacement _____
 - d. $\text{AX} + \text{BY} \rightarrow \text{AY} + \text{BX}$ Double Replacement _____
 - e. $\text{AX} + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}$ Combustion _____
5. Balance the following equations, then classify what type of reaction each equation is:
 - a. $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
 - b. $2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$
 - c. $\text{S}_8 + 24\text{F}_2 \rightarrow 8\text{SF}_6$
 - d. Iron + Oxygen yields Iron (III) Oxide
 $4\text{Fe} + 3\text{O}_2 \rightarrow 2\text{Fe}_2\text{O}_3$
 - e. Dicarbon Octahydride + Oxygen yields Carbon Dioxide + Water
 $\text{C}_2\text{H}_8 + 4\text{O}_2 \rightarrow 2\text{CO}_2 + 4\text{H}_2\text{O}$
 - f. $\text{C}_{10}\text{H}_{16} + 8\text{Cl}_2 \rightarrow 10\text{C} + 16\text{HCl}$
 - g. $4\text{Sb} + 3\text{O}_2 \rightarrow \text{Sb}_4\text{O}_6$
 - h. $\text{P}_4\text{O}_{10} + 6\text{H}_2\text{O} \rightarrow 4\text{H}_3\text{PO}_4$
 - i. Potassium Oxide + Water Yields Potassium Hydroxide
 $\text{K}_2\text{O} + \text{H}_2\text{O} \rightarrow 2\text{KOH}$
 - j. Copper (II) Nitrate + Silver Chloride \rightarrow Silver (I) Nitrate + Copper (II) Chloride
 $\text{Cu}(\text{NO}_3)_2 + 2\text{AgCl} \rightarrow 2\text{AgNO}_3 + \text{CuCl}_2$
6. Classify the reactions in question #5.
 - a. Single Replacement _____
 - b. Decomposition _____
 - c. Synthesis _____
 - d. Synthesis _____
 - e. Combustion _____
 - f. Single Replacement _____
 - g. Synthesis _____
 - h. Synthesis _____

- i. Synthesis _____
j. Double Replacement _____

7. Predict the products for the following reactions. Then balance the equation.
(Note: If the reaction is single replacement, consult your activity series to determine if the reaction is possible).

- a. $K_2CrO_4 + Ba(NO_3)_2 \rightarrow BaCrO_4 + 2KNO_3$
- b. $2CaO \rightarrow 2Ca + O_2$
- c. $MgI_2 + F_2 \rightarrow MgF_2 + I_2$
- d. $4Li + O_2 \rightarrow 2Li_2O$
- e. Sodium Chloride + Calcium $\rightarrow NR$

8. Write the balanced chemical equation, complete ionic equation, the net ionic equation, and circle the spectator ions for the following reactions:



No Net Ionic Equation

