Single Displacement and Double Displacement Reactions

1. magnesium + silver nitrate → silver + magnesium nitrate

$$\frac{N_3}{Mg}$$
 + 2AgNO₃ \longrightarrow 2Ag + Mg(NO₃)₂

2. bromine + calcium iodide - iodine + calcium bromide

$$Br_2 + CaI_2 \longrightarrow I_2 + CaBr_2$$

3. copper + silver nitrate → silver + copper (II) nitrate

$$Cu + 2AgNO_3 \longrightarrow 2Ag + Cu(NO_3)_2$$

$$Zn + 2HCl \longrightarrow H_2 + ZnCl_2$$

5. lead (II) nitrate + potassium iodide → ▶ lead (II) iodide + potassium nitrate

$$Pb(NO_3)_2 + 2KI \longrightarrow PbI_2 + 2KNO_3$$

6. calcium carbonate + hydrogen chloride → → hydrogen carbonate + calcium chloride

CaCO₃ + 2HCl
$$\longrightarrow$$
 H₂CO₃ + CaCl₂

8. beryllium fluoride + sodium oxide - beryllium oxide + sodium fluoride

$$BeF_2 + Na_2O \longrightarrow BeO + 2NaF$$

- 9. For each of the following, predict what the products are and then balance the equation.
- a) aluminum reacts with iron (III) oxide (This is how iron is extracted from iron ore. It is heated at a high temperature with aluminum present. In the reaction, iron is separated from the iron ore producing a new aluminum compound.)

$$2Al + Fe_2O_3 \longrightarrow 2Fe + Al_2O_3$$

b) sodium reacts with water (This reaction is dangerous. Dropping a piece of sodium in water can cause a fire.)

c) sodium chloride reacts with hydrogen sulfate (sulfuric acid) (When this happens in the laboratory, a dangerous gas is produced.)

d) hydrogen sulfate reacts with calcium phosphate One of the products is hydrogen phosphate. This is a very good plant fertilizer.)

$$3H_2SO_4 + Ca_3(PO_4)_2 \longrightarrow 2H_3PO_4 + 3CaSO_4$$