HW 23

Classes of chemical compounds - 1

A. Reactions where acids and bases react with each other are called **<u>reactions of neutralization</u>**. In these reactions a salt and water are formed. E.g. below is a neutralization reaction between hydrochloric acid (HCl – acid) and sodium hydroxide (NaOH – base) with formation of salt (sodium chloride, NaCl) and water:

$$HCl + NaOH \rightarrow NaCl + H_2O$$

B. When acidic oxides react with water, they form acids. E.g.:

$$SO_3 + H_2O \rightarrow H_2SO_4$$

C. When basic oxides react with water, they form bases. E.g.:

$$CaO + H_2O \rightarrow Ca(OH)_2$$

1. What salts form in the following reactions of neutralization:

$$KOH + HBr \rightarrow \ ? \ + H_2O$$
$$HF + LiOH \rightarrow \ ? \ + H_2O$$
$$2NaOH + H_2SO_4 \rightarrow \ ? \ + 2H_2O$$

2. How many grams of calcium sulfate ($CaSO_4$) will form in the neutralization reaction of 7.4 g of calcium hydroxide [$Ca(OH)_2$] with an excess of sulfuric acid (H_2SO_4) according to the following reaction:

   $Ca(OH)_2 + H_2SO_4 \rightarrow CaSO_4$ (solid) $+ \ 2H_2O$?

3. Write down chemical reactions of the following oxides with water: BaO, L_2O, N_2O_3, and SeO_3.