**Topic 5- Conservation of Matter and Stoichiometry:**

1. Write a balanced chemical equation for each reaction below, and then identify the type of reaction: synthesis, decomposition, single replacement, double replacement, combustion (complete or incomplete). **(p. 278-283)**

1. sodium carbonate + calcium hydroxide yields sodium hydroxide + calcium carbonate
2. potassium oxide + water yields potassium hydroxide
3. calcium carbonate yields calcium oxide + carbon dioxide
4. methane + oxygen gas yields water + carbon dioxide

2. Which atom do we use to help us define ***one mole***? Why do we use this atom? **(p. 310)**

3. Convert 15.45 g CuCN2 to mol. **(p. 316)**

4. Convert 85.0 L chlorine gas to grams**. (p. 323, 22.4 L = 1 mol)**

5. Convert 3.33 x 1022 molecules oxygen gas to liters**. (p. 311-312)**

6. Carbon dioxide is produced in the reaction between calcium carbonate and hydrochloric acid.

**(p. 358-363)**

a) How many g of calcium carbonate would be needed to react completely with 15.0 g of hydrochloric acid?

b) How many molecules of carbon dioxide is produced when 10.0 g of calcium carbonate reacts with hydrochloric acid?

7. Zinc metal reacts with sulfuric acid to produce hydrogen gas and zinc (II) sulfate. What volume of hydrogen gas can be produced when 25.50 g of zinc metal reacts with sulfuric acid? **(p. 358-363)**