Defintiions:

Theoretical Yield:

Actual Yield:

Percent Yield:

Sample Problem:
Adipic acid, $H_2C_6H_8O_4$, used to produce nylon, is made commericially by a reaction between cyclohexane (C_6H_{12}) and O_2:

$$2C_6H_{12}\ (l) + 5O_2\ (g) \rightarrow 2\ H_2C_6H_8O_4\ (l) + 2H_2O\ (g)$$

(a) Assume that you carry out this reaction with 25.0 g of cyclohexane and that cyclohexane is the limiting reactant. What is the theoretical yield of adipic acid? (b) If you obtain 33.5 g of adipic acid, what is the percent yield of the reaction?

Sample Problem:

An iron ore sample contains Fe_2O_3 plus other impurities. A 752 g sample of this impure iron ore is heated with excess carbon, producing 453 g of pure iron by the following reaction:

$$Fe_2O_3\ (s) + 3C\ (s) \rightarrow 2Fe\ (s) + 3\ CO\ (g)$$

What is the mass percent of Fe_2O_3 in the original impure iron sample ? Assume that Fe_2O_3 is the only source of iron and that the reaction is 100% efficient.