Chemistry 101 – Unit 9
Practice Problems

1. 161 grams of Na_2CO_3 are dissolved in enough water to make 4.6 L of solution.

a. What is a solution?

b. What is the solute in this example?

c. What is the solvent in the example?

d. How many moles of Na_2CO_3 are being dissolved in this example?

e. What is the molarity (M) of the solution prepared in this example?

f. If 225 mL of this example solution are poured into a flask, how many moles of Na_2CO_3 have been put into the flask?

2.

a. How many grams of $CaCl_2$ must be added to water to make 200. mL of a solution that is 0.875 M $CaCl_2$?

b. What is the solvent in this example?

c. What is the solute in this example?

d. How many moles of $CaCl_2$ would be in 68.9 mL of the 0.875 M solution?

3. What volume, in mL, of 0.4050 M calcium chloride reacts completely with 25.00 mL of 0.2800 M silver nitrate?

$$\mathbf{2\ AgNO_3\ +\ CaCl_2 \rightarrow 2\ AgCl\ +\ Ca(NO_3)_2}$$

Given:

Wanted:

Path:

Factors:

4. For $2\ AgNO_3\ +\ MgBr_2\ \rightarrow\ 2\ AgBr(s)\ +\ Mg(NO_3)_2$

a. How many grams of AgBr can be prepared when 58.0 mL of 0.264 M $AgNO_3$ react with excess $MgBr_2$?

b. How many mL of 0.833 M $AgNO_3$ are required to react with 73.1 mL of 0.552 M $MgBr_2$?

c. If 205 mL of a $MgBr_2$ solution react completely with 42.95 mL of 0.439 M $AgNO_3$ solution, what must be the molarity of the $MgBr_2$ solution?