Exam 2 Practice Problems
Chem 60 (Chapters 5 & 6)

This is NOT a comprehensive study guide for the exam, but includes some topics you may need to review.

1. Complete the following table and show your work below.

Mass solute	**Volume solution**	**Concentration %(w/v)**
15.5 g	253.6 mL	
	22.8 mL	12.0 %
183.3 g		6.25 %

2. Complete the following table and show your work below.

Solute	**Mass Solute**	**Moles Solute**	**Volume Solution**	**Molarity**
KNO_3	22.5 g		125.0 mL	
$NaHCO_3$			250.0 mL	0.100 M
CH_3OH	12.5 g			0.500 M

5. How many grams of K_2CO_3 are in 750 mL of a 3.5% (w/v) K_2CO_3 solution?

6. A 158 mL sample of a 1.2 mol/L sucrose solution is diluted to 500.0 mL. What is the molarity of the diluted solution?

7. How many L of a 3.0 mol/L solution of NaCl are needed to make 15.0 L of 0.15 mol/L saline?

8. Balance the following reactions:

a) ___ Li_2O (s) + ___ H_2O (l) → ___ LiOH (aq)

b) ___ MnO_2 (s) +____HCl (aq) → ___ Cl_2 (g) +_____$MnCl_2$ (aq) +_____H_2O (l)

c) ___CO_2 (g) +____$CaSiO_3$ (s) +_____H_2O (l) → ___ SiO_2(s) +_____$Ca(HCO_3)_2$ (aq)

d) ___ Fe (s) + ___ S (l) → ___ Fe_2S_3 (s)

9. Gases: in each of the following situations, the properties of a gas are changing. Indicate whether each property will **increase**, **decrease** or **remain constant**:

Inflating a beach ball:

Pressure _____ Moles _____ Volume _____ Temperature _____

Propane tank valve is opened to grill a steak: (consider the gas inside the tank)

Pressure _____ Moles _____ Volume _____ Temperature _____