**Ksp Problems – Monday, March 1**

1. Which of the following compounds has the lowest solubility in mol/L in water? Justify.

a. Al(OH)3 Ksp = 2 x 10-32

b. CdS Ksp = 1 x 10-28

c. PbSO4 Ksp = 1 x 10-8

d. Sn(OH)2 Ksp = 3 x 10-27

e. MgC2O4 Ksp = 9 x 10-5

2. The Ksp of AgI is 1.5 x 10-16. Calculate the solubility in mol/L of AgI in 0.30 M NaI solution.

3. How many moles of CaF2 will dissolve in 3.0 L of 0.50 M NaF solution? Ksp for CaF2 = 4.0 x 10-11.

4. If 30.0 mL of 5.0 x 10-4 M Ca(NO3)2 are added to 70 mL of 2.0 x 10-4 M NaF, will a precipitate occur? Justify with a calculation. Ksp of CaF2 = 4.0 x 10-11.

5. Calculate the concentration of chromate ion, CrO42-, in a saturated solution of CaCrO4.

6. Calculate the molar solubility of Fe(OH)3. The Ksp for iron(III) hydroxide is 1.8 x 10-15.

7. How many moles of Ca(NO3)2 must be added to 1.0 L of a 0.100 M HF solution to begin precipitation of CaF2(s)? For CaF2, Ksp = 4.0 x 10-11.

8. A 3.5 x 102 mL solution of 3.2 M Pb(NO3)2 is added to 2.0 x 102 mL of 0.020 M NaCl solution. Determine the equilibrium concentration of all ions. Ksp for lead(II) chloride is 1.6 x 10-5.