Assignment 2 – Due: Oct. 13, 2014

1. Calculate the molar solubility of silver chromate, Ag_2CrO_4, in
   a) water.
   b) 0.1 M H_2CrO_4 solution ($K_{sp} = 1.1 \times 10^{-12}$ for Ag_2CrO_4).

2. If 0.00256 g of $Fe_2(CO_3)_3$ is required to saturate 100 mL of solution. What is the solubility product?

3. A 0.50 L solution of 0.0050 M $BaCl_2$ is added to 0.50 L solution of 0.00050 M Na_2SO_4. Will the precipitation of SO_4^{2-} as $BaSO_4$ (s) be complete? $K_{sp} = 1.1 \times 10^{-10}$.

4. A saturated solution of lead iodate in pure water has a Pb ion conc. of 4.0×10^{-5} mole per liter at 25 °C

(a) Calculate the value for the solubility-product constant of $Pb(IO_3)_2$ at 25 °C

(b) Calculate the molar solubility of $Pb(IO_3)_2$ in a 0.15 M $Pb(NO_3)_2$ solution at 25 °C

(c) To 400 mL of a 0.120-M $Pb(NO_3)_2$ solution, 600 mL of 0.435-M KIO_3 is added. Calculate the concentration of Pb^{2+} and IO_3^- in the solution at equilibrium at 25 °C