Practice Selective Precipitation and Kf

1. What is the Cr3+ concentration when 0.010 mol of Cr(NO3)3 is dissolved in a liter of solution buffered at pH of 10.0. Cr3+ forms a complex ion with hydroxide shown below:

Cr3+ + 4 OH- Cr(OH)4- Kf =8.0 x 1029

1. Determine the molar solubility of cadmium phosphate, Cd3(PO4)2, in a 1.80 M solution of KI (need 2 equations)

Ksp Cd3(PO4)2 = 2.5 x 10-23 Kf CdI4- =2.0 x 106

1. AgNO3 is added to a solution that is 0.10 M in NaCl and 0.010 M K2CrO4. Assume no dilution caused by the addition of AgNO3. Given the Ksp values below:

Ksp for AgCl = 1.6x10–10

Ksp for Ag2CrO4= 9.0x10–12

1. Which precipitates first, AgCl or Ag2CrO4? Calculate the [Ag+] when precipitation first begins
2. What is the [Cl–] when Ag2CrO4 first begins to precipitate?