

**18.3** 18a. Use Ksp to calculate [Ag+] in a solution of AgBr at equilibrium.

18b. Use Ksp to calculate [F-] in a solution of CaF2 at equilibrium.

18c. Use Ksp to calculate the solubility of PbI2

68. Calculate the molar solubility of strontium chromate (SrCrO4) in water at 298 K if Ksp = 3.5x10-5

70. How many moles per liter of silver chloride will be in a saturated solution of AgCl? Ksp = 1.8x10-10

19c. Predict whether a will precipitate of Mg(OH)2 will form when equal volumes of 0.20*M* MgCl2(aq) and 0.0025*M* NaOH(aq) are mixed.

67. Calculate the ion product to determine what direction the equilibrium shifts & if a precipitate will form when 125mL of 0.005*M* sodium chloride is mixed with 125mL 0.001*M* silver nitrate solution.

** \alpha A + \beta B \rightleftharpoons \sigma S + \tau T**NaCl(aq) + AgNO3(aq) NaNO3(aq) + AgCl(s)

69. Will a precipitate form when 1.00 L of 0.150M iron (II) chloride solution is mixed with 2.00 L of 0.0333M sodium hydroxide solution? What direction will equilibrium shift?

**Ksp & Q KEY**

18.3 18a) **[Ag+] = 7.3x10-7 mol/L**

**18b) [F-] = 4.2x10-4 mol/L**

**18c) x = 1.3x10-3 mol/L**

**68. s = 5.9 x 10-3 mol/L**

**70. 1.3x10-5 mol/L**

**19c. A precipitate of Mg(OH)2 forms**

**67. Qsp = 1.25x10-6; Ksp = 1.8x10-10 Qsp > Ksp,**

**equilibrium shifts to right, forms more products, and a precipitate forms**

**69. Qsp = 2.46x10-5; Ksp = 4.9x10-17 Qsp > Ksp,**

**equilibrium shifts to right, forms more products, and a precipitate forms**