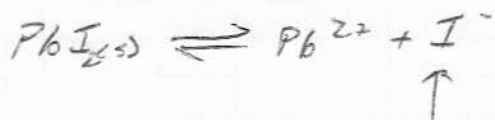


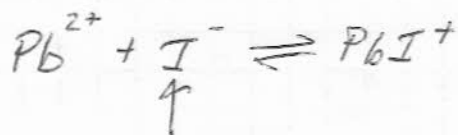
Chapter 6

(22) At low I^- concentrations the solubility of PbI_2 is determined by the common ion effect



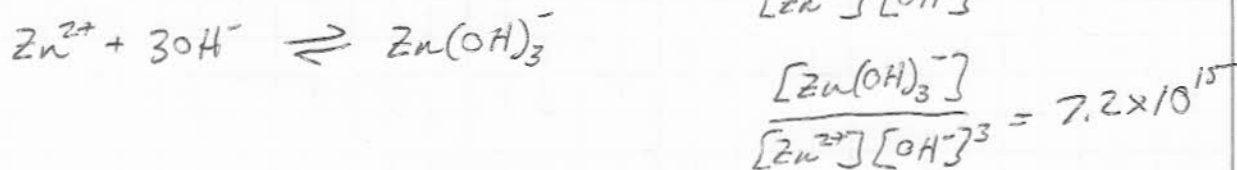
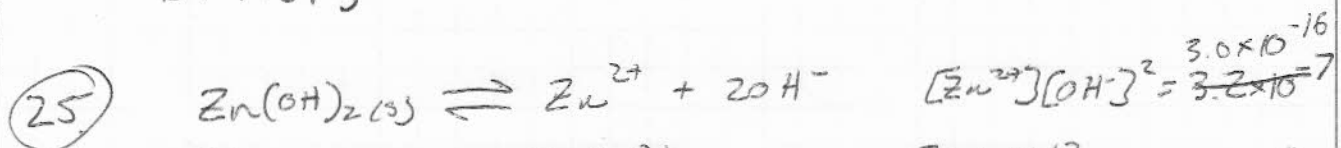
the presence of I^- causes the equilibrium to shift to the left (lower solubility)

At higher I^- concentrations the solubility of PbI_2 is determined by the formation of complex ions



the presence of I^- leads to the formation of PbI^+ and draws more Pb^{2+} into solution from $PbI_2(s)$ (increasing solubility)

- (23) a. BF_3
b. AsF_5



$$[\text{Zn}^{2+}] = \frac{3.0 \times 10^{-16}}{(3.2 \times 10^{-7})^2} = \boxed{2.9 \times 10^{-3} \text{ M}} = [\text{Zn}^{2+}]$$

$$[\text{ZnOH}^+] = 2.5 \times 10^4 (2.9 \times 10^{-3})(3.2 \times 10^{-7}) = \boxed{2.3 \times 10^{-5} \text{ M}}$$

$$[\text{Zn}(\text{OH})_3^-] = 7.2 \times 10^{15} (2.9 \times 10^{-3})(3.2 \times 10^{-7})^3 = \boxed{6.8 \times 10^{-7} \text{ M}}$$

$$[\text{Zn}(\text{OH})_4^{2-}] = 2.8 \times 10^{15} (2.9 \times 10^{-3})(3.2 \times 10^{-7})^4 = \boxed{8.5 \times 10^{-14} \text{ M}}$$