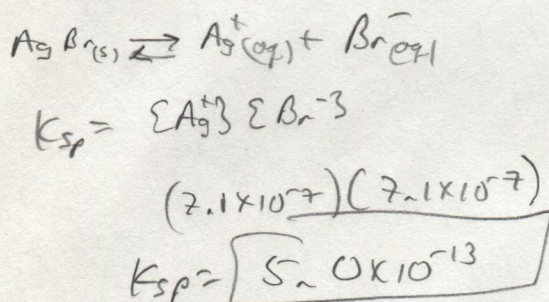


Calculations Involving Solubility Product

Given a dissociation equation, a solubility product expression can be written by setting the mass-action expression (the product of the solubilities of ions, raised to appropriate powers) equal to the solubility product constant, K_{sp} . Such expressions allow calculation of equilibrium concentrations, prediction of precipitation, or calculation of K_{sp} , if it is not already known.

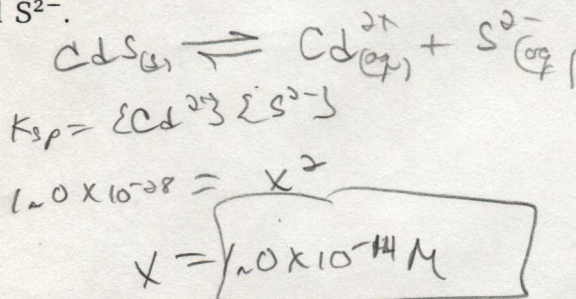
Solve the following problems. Show your work.

1. The equilibrium concentrations of Ag^+ and Br^- ions are both $7.1 \times 10^{-7} \text{ M}$. Write the balanced dissociation equation and the solubility product for AgBr , and calculate K_{sp} .



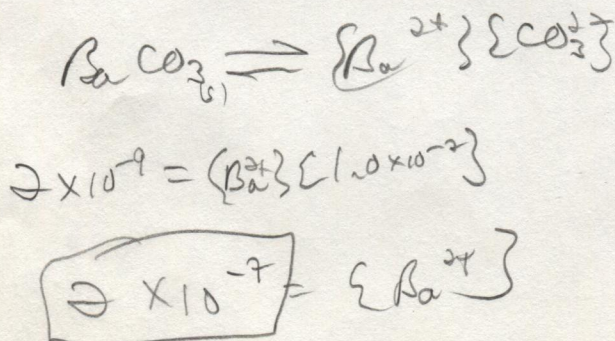
1. _____

- The value of K_{sp} for CdS is 1.0×10^{-28} . Write the balanced dissociation equation and the solubility product for CdS , and calculate the equilibrium concentrations of Cd^{2+} and S^{2-} .



2. _____

3. A solution contains CO_3^{2-} ions and Ba^{2+} ions in equilibrium. K_{sp} for BaCO_3 equals 2×10^{-9} , and $[\text{CO}_3^{2-}]$ equals $1.0 \times 10^{-2} \text{ M}$. Calculate $[\text{Ba}^{2+}]$. (First, write the balanced equation and solubility product expression.)



3. _____
