Name _____ Class _____ Date _____

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 7.1×10^{-7} *M*. Write the balanced dissociation equation and the solubility product for AgBr, and calculate K_{sp}.

1. _____

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2. 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. _____

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

3. _____

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