Solubility Constant Product Calculations Practice

Part 2

1.) Will a precipitate form if $1.0\ L$ of $3.0 \times 10^{-10}\ M\ Fe^{+2}$ is added to $1.0\ L$ of $1.2 \times 10^{-8}\ M\ S^{-2}$?

2.) What concentration of S^{-2} is required to just start precipitation of CuS from a $0.20\ M$ solution of $CuCl_2$?

3.) What F^- concentration is required to just start precipitating CaF_2 from a $0.30 \times 10^{-3}\ M$ solution of $CaNO_3$? $K_{sp} = 1.5 \times 10^{-10}$ for CaF_2.

4.) Will a precipitate form when $10.0\ mL\ of\ 1.0 \times 10^{-3}\ M$ $Pb(NO_3)_2$ is added to $40.0\ mL\ of\ 1.5 \times 10^{-4}\ M$ Na_2SO_4?

5.) A precipitate barely forms when $20.0\ mL\ of\ 3.0 \times 10^{-3}\ M\ Ni^{+2}$ is added to $60.0\ mL\ of\ 2.52 \times 10^{-4}\ M\ CO_3^{-2}$. What is K_{sp} for $NiCO_3$?

6.) Does a precipitate form when $25.0\ mL\ of\ 1.0 \times 10^{-4}\ M$ Zn(NO$_3$)$_2$ is added to $45.0\ mL\ of\ 2.4 \times 10^{-5}\ M$ Ca(OH)$_2$? $K_{sp} = 4.1 \times 10^{-17}$ for Zn(OH)$_2$.

7.) When $100.0\ mL\ of\ 4.0 \times 10^{-2}\ M$ CaCl$_2$ is added to $150.0\ mL\ of\ 2.9 \times 10^{-2}\ M$ NaOH, A precipitate of Ca(OH)$_2$ just starts to form. What is K$_{sp}$ for Ca(OH)$_2$?

8.) Does a precipitate form when $20.0\ mL\ of\ 5.0 \times 10^{-5}\ M\ Ca^{+2}$ is added to $35.0\ mL\ of\ 2.5 \times 10^{-4}\ M\ C_2O_4^{-2}$ and the resulting solution is boiled down to a total volume of $25.0\ mL$.

9.) If $0.1\ M\ Pb^{+2}$ is added dropwise to a solution having $0.10\ M\ Cl^-$, $0.10\ M\ I^-$, and $0.10\ M\ SO_4^{-2}$, which precipitate will form first?