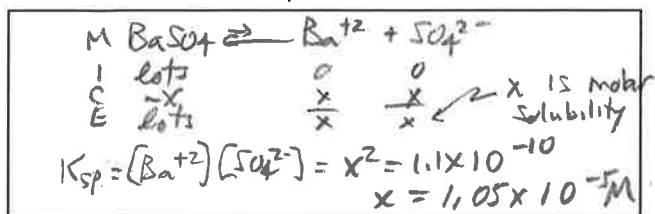
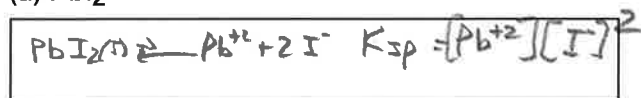


1. What is the molar solubility of barium sulfate in pure water? Given $K_{sp} = 1.1 \times 10^{-10}$

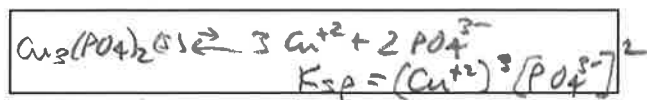


2. Write the equilibrium expression along with the appropriate arrows for each of the following sparingly soluble salts and then write the K_{sp} expression for the equilibrium.

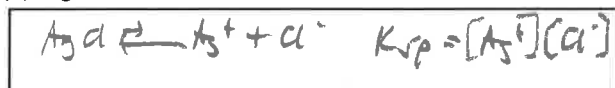
(a) PbI_2



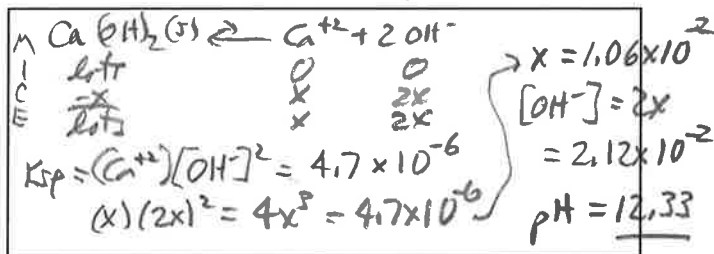
(b) $Cu_3(PO_4)_2$



(c) $AgCl$



3. What is the $[OH^-]$ and pH of a saturated solution of calcium hydroxide? Given $K_{sp} = 4.7 \times 10^{-6}$



4. Which member of each pair has the greater molar solubility? As always, whenever a box is provided, explain your reasoning or show your work. Look up K_{sp} in your textbook, page A-15.

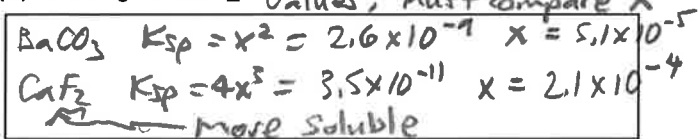
(a) PbI_2 or $PbBr_2$

8.5×10^{-9}
 6.6×10^{-6}

Can compare K_{sp} values because both have 1:2 formulas
 $PbBr_2$ is more soluble

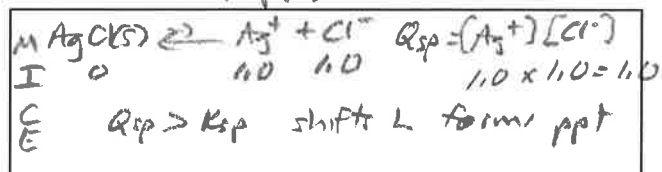
(b) $BaCO_3$ or CaF_2

cannot compare K_{sp} values, must compare x

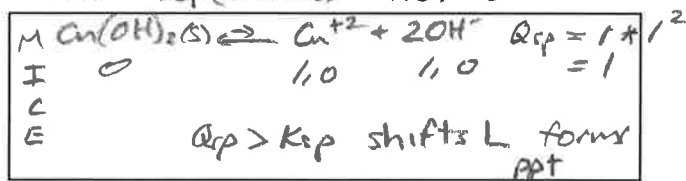


5. Which of the following activities will produce a precipitate? Write either "No ppt" or write the formula of the precipitate predicted. Consult the table of K_{sp} values in your textbook, page A-15.

(a) Adding equal volumes of 1 M $NaCl$ and 1 M $AgNO_3$. $K_{sp}(AgCl) = 1.8 \times 10^{-10}$



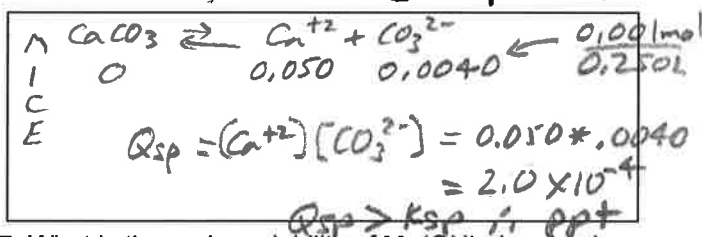
(b) Adding equal volumes of 1 M $NaOH$ and 1 M $CuCl_2$. $K_{sp}(Cu(OH)_2) = 1.6 \times 10^{-19}$



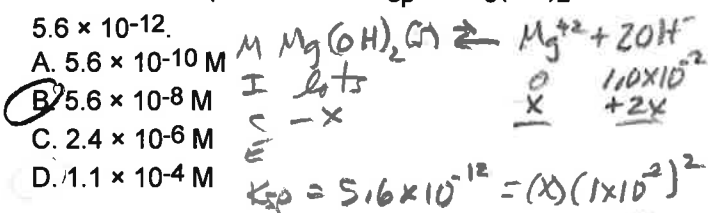
(c) Adding equal volumes of 1 M NH_4Cl and 1 M KBr .

No ppt - everything is soluble

6. Will a precipitate form if 0.0010 mol solid sodium carbonate is stirred into a 250 mL solution of 0.050 M calcium nitrate? $CaCO_3$ $K_{sp} = 5.0 \times 10^{-9}$



7. What is the molar solubility of $Mg(OH)_2$ in a basic solution with a pH of 12.00? K_{sp} for $Mg(OH)_2$ is 5.6×10^{-12} .



8. Calculate the K_{sp} for silver sulfite if the solubility of Ag_2SO_3 in pure water is $4.6 \times 10^{-3} g/L$.

