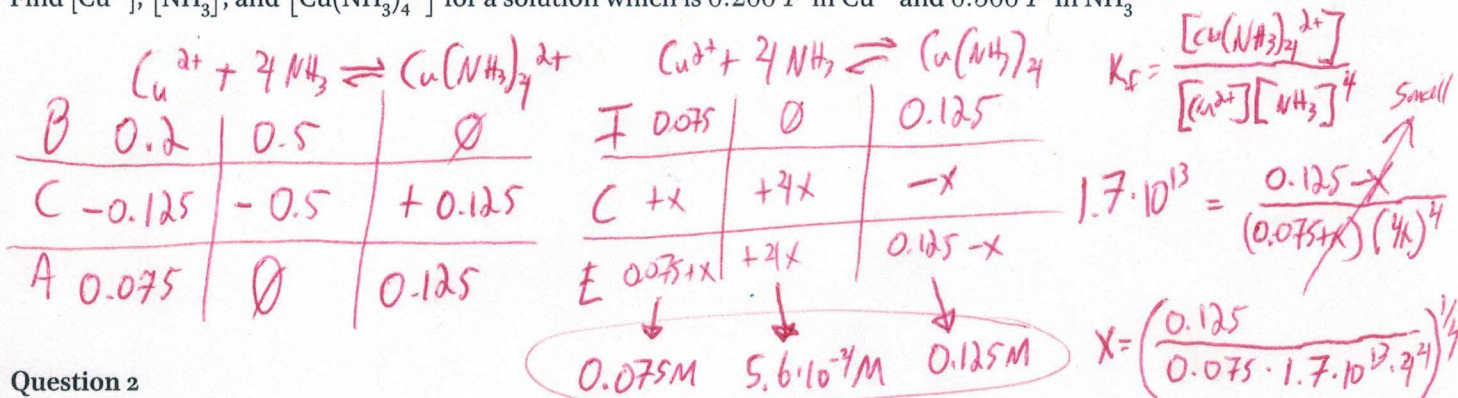


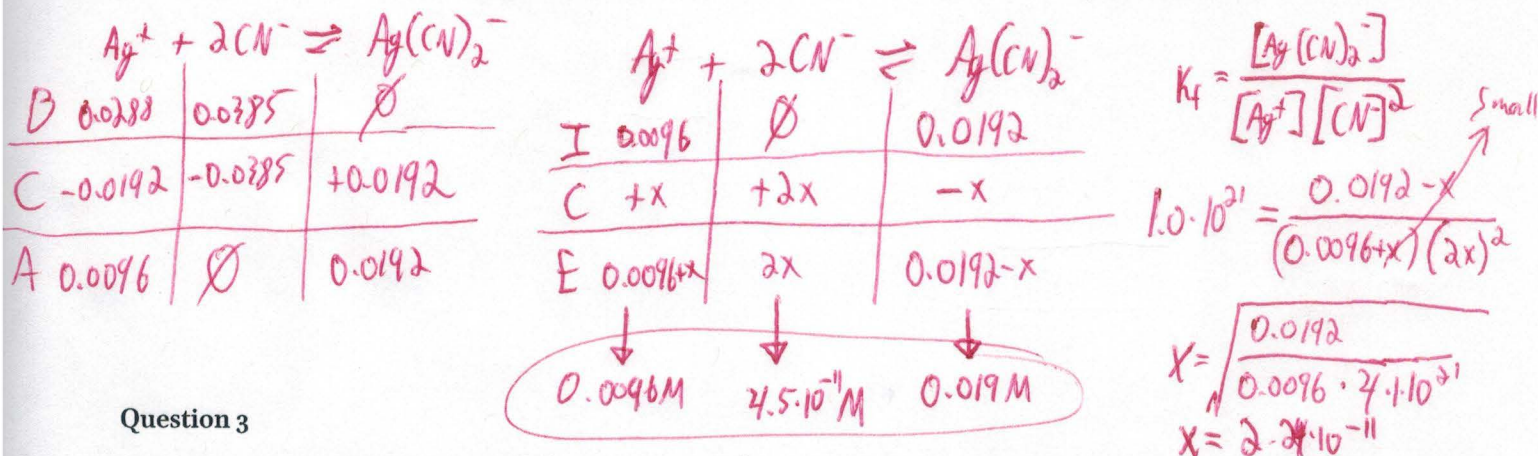
Quiz 17.5 - Formation Reactions

Name: Kery

Question 1

Copper(II) ions will form a $\text{Cu}(\text{NH}_3)_4^{2+}$ complex ion with $K_f = 1.7 \times 10^{13}$ Find $[\text{Cu}^{2+}]$, $[\text{NH}_3]$, and $[\text{Cu}(\text{NH}_3)_4^{2+}]$ for a solution which is 0.200 F in Cu^{2+} and 0.500 F in NH_3 

Question 2

Consider the formation of the complex ion $\text{Ag}(\text{CN})_2^-$, with ($K_f = 1.0 \times 10^{21}$)Find $[\text{Ag}^+]$, $[\text{CN}^-]$, and $[\text{Ag}(\text{CN})_2^-]$ in a solution prepared by mixing 25.00 ml of 0.075 M AgNO_3 with 40.00 ml of 0.100 M NaCN \rightarrow 0.0385M \rightarrow 0.0288M

Question 3

 PbI_2 is a sparingly soluble salt with $K_{sp} = 9.8 \times 10^{-9}$, while PbI_4^{2-} is a complex ion with $K_f = 3.0 \times 10^4$ What effect does the formation reaction have on the molar solubility of PbI_2 ?(Bonus for the truly adventurous!: Find $[\text{Pb}^{2+}]$, $[\text{I}^-]$, and $[\text{PbI}_4^{2-}]$ if excess $\text{PbI}_2(\text{s})$ is placed in pure water)It will increase the solubility as dissolved Pb^{2+} and I^- areconsumed to produce PbI_4^{2-} 