

## Quiz 15.3 – Formation Reactions

Name: \_\_\_\_\_

**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  $M$  in  $\text{Cu}^{2+}$  and 0.500  $M$  in  $\text{NH}_3$ **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  $M$   $\text{AgNO}_3$  with 40.00  $ml$  of 0.100  $M$   $\text{NaCN}$ **Question 3** $\text{PbI}_2$  is a sparingly soluble salt with  $K_{sp} = 9.8 \times 10^{-9}$ , while  $\text{PbI}_4^{2-}$  is a complex ion with  $K_f = 3.0 \times 10^4$ What effect does the formation reaction have on the molar solubility of  $\text{PbI}_2$ ?(Bonus for the truly adventurous!: Find  $[\text{Pb}^{2+}]$ ,  $[\text{I}^-]$ , and  $[\text{PbI}_4^{2-}]$  if excess  $\text{PbI}_2(s)$  is placed in pure water)

*God Says Yes to Me*

By Kaylin Haught

I asked God if it was okay to be melodramatic  
and she said yes  
I asked her if it was okay to be short  
and she said it sure is  
I asked her if I could wear nail polish  
or not wear nail polish  
and she said honey  
she calls me that sometimes  
she said you can do just exactly  
what you want to  
Thanks God I said  
And is it even okay if I don't paragraph  
my letters  
Sweetcakes God said  
who knows where she picked that up  
what I'm telling you is  
Yes Yes Yes