

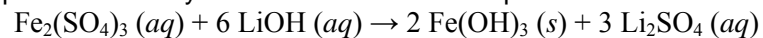
Chem 115
 Group Problem 3 Redux
 2/26/08

1) The problem asked you to, "Determine whether a reaction occurs, and if so, write the reaction." (You did not need to balance the reactions.)
 What is wrong with each of the following?

Reactants are: $\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq)$	
Answer given	What's wrong?
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq) \rightarrow \text{LiC}_2\text{H}_3\text{O}_2 (aq) + \text{PbBr}_2 (s)$	
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq) \rightarrow \text{Li}(\text{C}_2\text{H}_3\text{O}_2) (aq) + \text{Pb}(\text{Br})_2 (s)$	
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq) \rightarrow \text{Li}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{PbBr} (s)$	
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq) \rightarrow \text{PbBr}_2 (s)$	
$\text{Pb}(\text{C}_2\text{H}_3\text{O}_2)_2 (aq) + \text{LiBr} (aq) \rightarrow \text{LiPb} (s) + \text{BrC}_2\text{H}_3\text{O}_2 (aq)$	
a reaction occurs	

Reactants are: $(\text{NH}_4)_2\text{CO}_3 (aq) + \text{K}_3\text{PO}_4 (aq)$	
Answer given	What's wrong?
$(\text{NH}_4)_2\text{CO}_3 (aq) + \text{K}_3\text{PO}_4 (aq) \rightarrow (\text{NH}_4)_3\text{PO}_4 (aq) + \text{K}_2\text{CO}_3 (aq)$	
$(\text{NH}_4)_2\text{CO}_3 (aq) + \text{K}_3\text{PO}_4 (aq) \rightarrow (\text{NH}_4)_3\text{PO}_4 (aq) + \text{K}_2\text{CO}_3 (s)$	
$(\text{NH}_4)_2\text{CO}_3 (aq) + \text{K}_3\text{PO}_4 (aq) \rightarrow (\text{NH}_4)_2\text{PO}_4 (aq) + \text{K}_3\text{CO}_3 (s)$	
$(\text{NH}_4)_2\text{CO}_3 (aq) + \text{K}_3\text{PO}_4 (aq) \rightarrow \text{PO}_4(\text{NH}_4)_2 (aq) + \text{K}_3\text{CO}_3 (s)$	

2) The problem asked you to write the net ionic equation for



What is wrong with each of the following?

Overall reaction is: $\text{Fe}_2(\text{SO}_4)_3 (aq) + 6 \text{LiOH} (aq) \rightarrow 2 \text{Fe}(\text{OH})_3 (s) + 3 \text{Li}_2\text{SO}_4 (aq)$	
Answer given for net ionic equation	What's wrong?
$\text{Fe}^{3+} (aq) + \text{OH}^- (aq) \rightarrow \text{Fe}(\text{OH})_2 (s)$	
$\text{Fe}^{3+} (aq) + \text{OH}^- (aq) \rightarrow 2 \text{Fe}(\text{OH})_3 (s)$	
$2 \text{Fe}^{3+} (aq) + 6 (\text{OH}^-) (aq) \rightarrow 2 \text{Fe}(\text{OH})_3 (s)$	
no reaction occurs because all are spectators and cancel out	
$\text{Fe}^{2+} (aq) + \text{OH}^- (aq) \rightarrow \text{Fe}(\text{OH})_3 (s)$	
$\text{Fe}^{3+} (aq) + \text{OH}^- (aq) \rightarrow \text{FeOH}_3 (s)$	
$\text{Fe}^{3+} (aq) + \text{OH}^- (aq) \rightarrow \text{FeOH} (s)$	
$\text{Fe} (aq) + \text{OH} (aq) \rightarrow \text{Fe}(\text{OH})_3 (s)$	
$\text{Fe}_2^{3+} (aq) + (\text{OH})_6^- (aq) \rightarrow 2 \text{Fe}(\text{OH})_3 (s)$	