

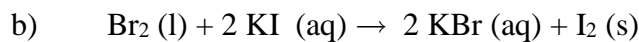
REVIEW QUESTIONS

Chapter 7

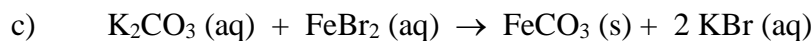
1. Classify each of the following reactions in as many ways as possible:



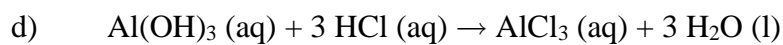
decomposition



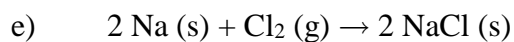
single replacement



double replacement; precipitation

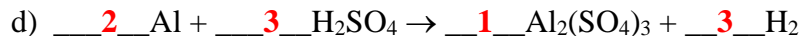
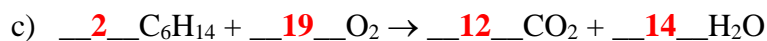
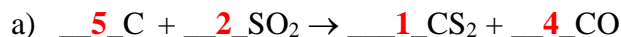


double replacement; neutralization



synthesis

2. Balance each of the equations shown below:



3. Write a balanced equation for the photosynthesis reaction in which gaseous carbon dioxide and liquid water react to produce aqueous glucose ($\text{C}_6\text{H}_{12}\text{O}_6$) and oxygen gas.



4. Indicate whether each of the following is soluble or insoluble in water:

- a) MgSO_4 soluble . b) KCl soluble .
 c) $(\text{NH}_4)_2 \text{CO}_3$ soluble . d) PbS insoluble .
 e) $\text{Ca}(\text{OH})_2$ insoluble . f) Na_3PO_4 soluble .
 g) PbBr_2 insoluble . h) $\text{Al}(\text{OH})_3$ insoluble .

5. Complete and balance the equations below for each neutralization and unstable product reaction:

- a) $2 \text{HCl} (\text{aq}) + \text{Ca}(\text{OH})_2 (\text{aq}) \rightarrow \text{CaCl}_2 (\text{aq}) + 2 \text{H}_2\text{O} (\text{l})$
 b) $\text{CaCO}_3 (\text{s}) + 2 \text{HNO}_3 (\text{aq}) \rightarrow \text{Ca}(\text{NO}_3)_2 (\text{aq}) + \text{CO}_2 (\text{g}) + \text{H}_2\text{O} (\text{l})$
 c) $\text{H}_2\text{SO}_4 (\text{aq}) + 2 \text{LiOH} (\text{aq}) \rightarrow \text{Li}_2\text{SO}_4 (\text{aq}) + 2 \text{H}_2\text{O} (\text{l})$
 d) $\text{HClO}_3 (\text{aq}) + \text{LiHSO}_3 (\text{aq}) \rightarrow \text{LiClO}_3 (\text{aq}) + \text{SO}_2 (\text{g}) + \text{H}_2\text{O} (\text{l})$

6. What solution can you add to each cation mixture below to separate them from each other by precipitating one while keeping the other one in solution? Write a net ionic equation for the precipitation reaction that occurs for each pair.

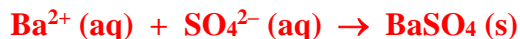
- a) $\text{NH}_4^+ (\text{aq})$ and $\text{Ca}^{2+} (\text{aq})$

Sodium carbonate (Na_2CO_3), since $(\text{NH}_4)_2\text{CO}_3$ is soluble while CaCO_3 is insoluble

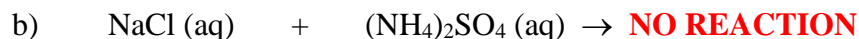
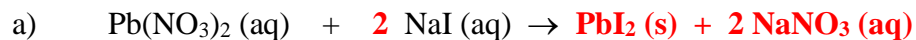


- b) $\text{Ba}^{2+} (\text{aq})$ and $\text{Mg}^{2+} (\text{aq})$

Sodium sulfate (Na_2SO_4), since MgSO_4 is soluble while BaSO_4 is insoluble



7. Predict the products of each reaction below and write balanced complete ionic and net ionic equations for each. If no reaction occurs, write NO REACTION.



Both possible products formed, Na_2SO_4 and NH_4Cl are soluble, therefore no reaction occurs

