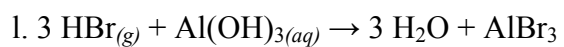


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1. a. Combustion
 b. Neutralization
 c. Decomposition
 d. Double Replacement
 e. Synthesis
 f. Synthesis
 g. Decomposition
 h. Single Replacement
2. a. $\text{H}_2\text{SO}_4(aq) + 2 \text{NaOH}(aq) \rightarrow \text{Na}_2\text{SO}_4 + 2 \text{H}_2\text{O}$
 b. $\text{H}_3\text{PO}_4(aq) + 3 \text{KOH}(aq) \rightarrow \text{K}_3\text{PO}_4 + 3 \text{H}_2\text{O}$
 c. $3 \text{H}_2\text{SO}_4(aq) + 2 \text{Fe}(\text{OH})_3(aq) \rightarrow \text{Fe}_2(\text{SO}_4)_3 + 6 \text{H}_2\text{O}$
 d. $\text{H}_4\text{P}_2\text{O}_7(aq) + 2 \text{Ca}(\text{OH})_2(aq) \rightarrow \text{Ca}_2\text{P}_2\text{O}_7 + 4 \text{H}_2\text{O}$
3. a. $2 \text{HNO}_3(aq) + \text{Sr}(\text{OH})_2(aq) \rightarrow \text{Sr}(\text{NO}_3)_2 + 2 \text{H}_2\text{O}$ Neutralization
 b. $2 \text{NO}_2(g) \rightarrow \text{N}_2 + 2\text{O}_2$ Decomposition
 c. $\text{Cl}_2(g) + \text{CaBr}_2(s) \rightarrow \text{CaCl}_2 + \text{Br}_2$ Single Replacement
 d. $\text{ZnSO}_4(aq) + \text{SrCl}_2(aq) \rightarrow \text{ZnCl}_2 + \text{SrSO}_4$ Double Replacement
 e. $\text{C}_9\text{H}_{20}\text{O}_4\text{S}_2(l) + 14 \text{O}_2(g) \rightarrow 9 \text{CO}_2 + 10 \text{H}_2\text{O} + 2 \text{SO}_2$ Combustion
 f. $8 \text{Zn}(s) + \text{S}_8(s) \rightarrow 8 \text{ZnS}$ Synthesis
 g. $2 \text{ICl}(s) \rightarrow \text{Cl}_2 + \text{I}_2$ Decomposition
 h. $2 \text{NaBr}(aq) + \text{Ca}(\text{OH})_2(aq) \rightarrow 2 \text{NaOH} + \text{CaBr}_2$ Double Replacement
 i. $4 \text{C}_5\text{H}_9\text{O}(g) + 27 \text{O}_2(g) \rightarrow 20 \text{CO}_2 + 18 \text{H}_2\text{O}$ Combustion
 j. $3 \text{Pb}(s) + 2 \text{H}_3\text{PO}_4(aq) \rightarrow 3 \text{H}_2 + \text{Pb}_3(\text{PO}_4)_2$ Single Replacement
 (use Pb^{2+} in “j” since it is the most common ion)
 k. $\text{Li}_3\text{N}(aq) + 3 \text{NH}_4\text{NO}_3(aq) \rightarrow 3 \text{LiNO}_3 + (\text{NH}_4)_3\text{N}$ Double Replacement



Neutralization

4. Neutralization (acid-base) reactions produce water (covalent molecule) and an aqueous salt (ionic). Double replacement reactions produce two salts, where at least one is usually insoluble (a precipitate)