

**Reaction Prediction (Set #3): (Page 8).**

- $\text{Fe}_2\text{O}_3 + 3\text{H}_2 \rightarrow 3\text{H}_2\text{O} + 5\text{Fe}$
- $\text{Bi}_2\text{O}_5 \rightarrow 4\text{Bi} + 5\text{O}_2$
- $3\text{Mn}(\text{ClO}_3)_2 + 2\text{K}_3\text{PO}_4 \rightarrow 6\text{KClO}_3 + \text{Mn}_3(\text{PO}_4)_2(\text{s})$
- $\text{Pb}(\text{CH}_3\text{COO})_2 + \text{Na}_2\text{CrO}_4 \rightarrow \text{PbCrO}_4(\text{s}) + 2\text{NaCH}_3\text{COO}$
- $2\text{K} + \text{I}_2 \rightarrow 2\text{KI}$
- $(\text{NH}_4)_2\text{SO}_4 + \text{Ba}(\text{NO}_3)_2 \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NH}_4\text{NO}_3$
- $2\text{ZnO} \rightarrow 2\text{Zn} + \text{O}_2$
- $2\text{AuCl}_3 + 3\text{Na}_2\text{S} \rightarrow 6\text{NaCl} + \text{Au}_2\text{S}_3(\text{s})$
- $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2$
- $\text{Ca}(\text{OH})_2 + \text{Fe}(\text{NO}_3)_2 \rightarrow \text{Fe}(\text{OH})_2(\text{s}) + \text{Ca}(\text{NO}_3)_2$
- $2\text{C}_4\text{H}_{10} + 13\text{O}_2 \rightarrow 8\text{CO}_2 + 10\text{H}_2\text{O}$
- $\text{SnS}_2 \rightarrow \text{Sn} + 2\text{S}$
- $2\text{AgNO}_3 + \text{Zn} \rightarrow \text{Zn}(\text{NO}_3)_2 + 2\text{Ag}$
- $\text{K}_2\text{CO}_3 + \text{Pb}(\text{NO}_3)_2 \rightarrow 2\text{KNO}_3 + \text{PbCO}_3(\text{s})$
- $2\text{NH}_4\text{Cl} + \text{Hg}(\text{C}_2\text{H}_3\text{O}_2)_2 \rightarrow 2\text{NH}_4\text{C}_2\text{H}_3\text{O}_2 + \text{HgCl}_2(\text{s})$
- $\text{Fe} + 2\text{HCl} \rightarrow \text{FeCl}_2 + \text{H}_2$ or $2\text{Fe} + 6\text{HCl} \rightarrow 2\text{FeCl}_3 + 3\text{H}_2$
- $2\text{NaI} + \text{Cl}_2 \rightarrow 2\text{NaCl} + \text{I}_2$
- $4\text{Al} + 3\text{O}_2 \rightarrow 2\text{Al}_2\text{O}_3$
- $\text{BaCl}_2 + \text{Li}_2\text{SO}_4 \rightarrow \text{BaSO}_4(\text{s}) + 2\text{LiCl}$
- $\text{H}_2\text{SO}_4 + \text{Ca}(\text{OH})_2 \rightarrow \text{CaSO}_4 + 2\text{H}_2\text{O}$
- $\text{Fe}(\text{NO}_3)_2 + \text{Na}_2\text{S} \rightarrow \text{FeS} + 2\text{NaNO}_3$
- $\text{C}_5\text{H}_{11} + 8\text{O}_2 \rightarrow 5\text{CO}_2 + 6\text{H}_2\text{O}$

Reaction Prediction (Set #4): (Page 9).

- $\text{ZnCl}_2 + (\text{NH}_4)_2\text{S} \rightarrow 2\text{NH}_4\text{Cl} + \text{ZnS}(\text{s})$
- $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
- $\text{MgBr}_2 + \text{Cl}_2 \rightarrow \text{MgCl}_2 + \text{Br}_2$
- $2\text{Al}_2\text{O}_3 \rightarrow 2\text{Al} + 3\text{O}_2$
- $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl}(\text{s}) + \text{NaNO}_3$
- $\text{Mg} + \text{Cu}(\text{NO}_3)_2 \rightarrow \text{Mg}(\text{NO}_3)_2 + \text{Cu}$
- $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$
- $\text{Pb}(\text{NO}_3)_2 + 2\text{KBr} \rightarrow \text{PbBr}_2(\text{s}) + 2\text{KNO}_3$
- $2\text{Cu} + \text{SnCl}_4 \rightarrow 2\text{CuCl}_2 + \text{Sn}$
- $2\text{C}_{10}\text{H}_{22} + 31\text{O}_2 \rightarrow 20\text{CO}_2 + 22\text{H}_2\text{O}$
- $3\text{K}_2\text{S} + 2\text{Fe}(\text{NO}_3)_3 \rightarrow 6\text{KNO}_3 + \text{Fe}_2\text{S}_3(\text{s})$
- $\text{Zn} + 2\text{AgNO}_3 \rightarrow \text{Zn}(\text{NO}_3)_2 + 2\text{Ag}$
- $4\text{Ag} + \text{O}_2 \rightarrow 2\text{Ag}_2\text{O}$
- $\text{SnCl}_4 \rightarrow \text{Sn} + 2\text{Cl}_2$
- $3\text{Ca}(\text{OH})_2 + 2\text{H}_3\text{PO}_4 \rightarrow \text{Ca}_3(\text{PO}_4)_2(\text{s}) + 6\text{H}_2\text{O}$
- $\text{MgI}_2 + \text{Cl}_2 \rightarrow \text{MgCl}_2 + \text{I}_2$
- $3\text{Ba}(\text{NO}_3)_2 + 2\text{Na}_3\text{PO}_4 \rightarrow \text{Ba}_3(\text{PO}_4)_2(\text{s}) + 6\text{NaNO}_3$
- $\text{MnO}_2 \rightarrow \text{Mn} + \text{O}_2$
- $\text{N}_2 + 3\text{H}_2 \rightarrow 2\text{NH}_3$
- $2\text{C}_{11}\text{H}_{22} + 33\text{O}_2 \rightarrow 22\text{CO}_2 + 22\text{H}_2\text{O}$
- $2\text{AlCl}_3 + 3\text{K}_2\text{S} \rightarrow 6\text{KCl} + \text{Al}_2\text{S}_3$
- $\text{Na}_2\text{SO}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{SO}_2(\text{g}) + \text{H}_2\text{O}$