3.2 Combustion, Synthesis, and Decomposition Reactions

Definitions

- Acid rain
- Combustion reaction
- Greenhouse effect
- Synthesis reaction
- Decomposition reaction
- Thermal decomposition

Combustion Reaction

- Complete combustion
  - E.g. $CH_{4(g)} + 2O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_{(g)}$
- Incomplete combustion (one possible reaction)
  - E.g. $4C_3H_{8(g)} + 13O_{2(g)} \rightarrow 4CO_{2(g)}+2CO_{(g)}+6C_{(s)}+16H_2O_{(g)}$
- Some combustion products will undergo secondary reactions to form acids ($CO_2 + H_2O \rightarrow H_2CO_3$)

Combustion and the Atmosphere

- CO_2 a greenhouse gas that contributes to global warming
- NO_2 an acid rain gas.

Synthesis Reactions

- $A + B \rightarrow AB$
- $2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$

Decomposition Reactions

- $AB \rightarrow A + B$
- $H_2O_{(l)} \rightarrow 2H_{2(g)} + O_{2(g)}$

Homework

- Practice Questions: 1,2,3,4,5,6,7
- Section Questions: 1,2