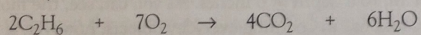
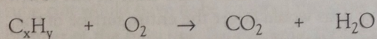


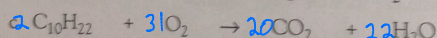
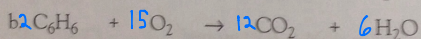
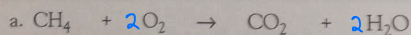
Warm-up:

Combustion

A hydrocarbon *combustion reaction* is a reaction in which a hydrocarbon is burned and consumed in the presence of oxygen. This type of reaction goes on all around us, from propane stoves and butane lighters to the octane in gasoline and the wax in paraffin candles. In the example below, C_xH_y is representative of any possible hydrocarbon—e.g., CH_4 or C_2H_6 .



Balance the following combustion reactions.



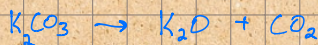
③ Decomposition Reactions:

A) Binary compounds break into individual parts



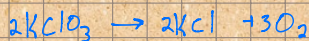
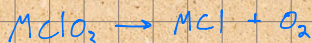
B) Metal Carbonates $[CO_3^{2-}]$

\hookrightarrow metal carbonate \rightarrow metal oxide + carbon dioxide



C) Metal chlorates $[ClO_3^-]$

\hookrightarrow metal chlorate \rightarrow metal chloride + oxygen gas



D) Metal Hydroxides $[OH^-]$

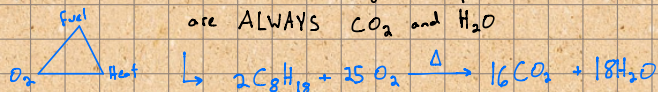
\hookrightarrow metal hydroxide \rightarrow metal oxide + water



copper (II) hydroxide



④ Combustion: When the fuel is a hydrocarbon products are ALWAYS CO_2 and H_2O



⑤ Double Replacement Reactions

* A new Solid, liquid, or gas must be produced

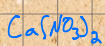
- Precipitate: solid that forms during a DR reaction

- Soluble: compound dissolves in H_2O

- Insoluble: does not dissolve in H_2O

* Use solubility rules to determine if soluble/insoluble

Circle compounds that are Insoluble:



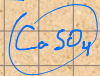
↑
(aq)



↑
(aq)



↑
(s)



↑
(s)



↑
(s)