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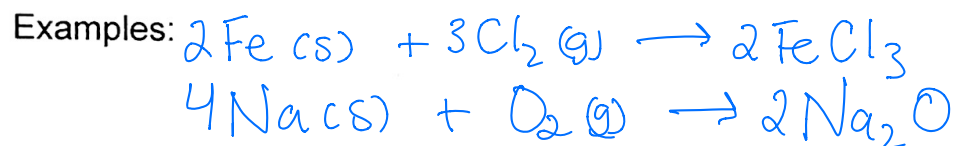
Chemistry 11

PREDICTING PRODUCTS FOR CHEMICAL REACTIONS

Type 1. SYNTHESIS: $A + B \rightarrow AB$

What to look for: Two elements reacting

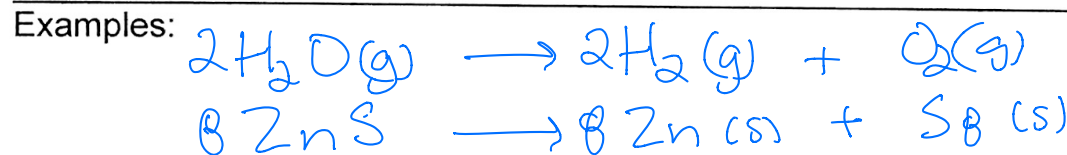
How to predict the products: an ionic compound forms using the most common ion charge for the transition metals



Type 2. DECOMPOSITION: $AB \rightarrow A + B$

What to look for: single compound

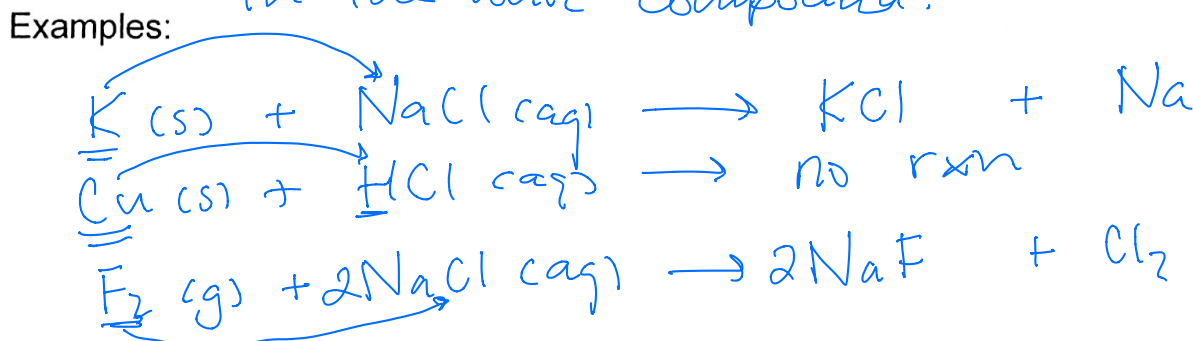
How to predict the products: break up the compound into its neutral elements ($\text{H}_2, \text{O}_2, \text{F}_2, \text{Br}_2, \text{I}_2, \text{N}_2, \text{Cl}_2$)
(l) (s)



Type 3. SINGLE REPLACEMENT: $M + AB \rightarrow MB + A$ or $N + AB \rightarrow AN + B$

What to look for: an element and an ionic compound

How to predict the products: use the activity series in your data booklet to determine if the lone element can bump out its counterpart in the ionic compound.



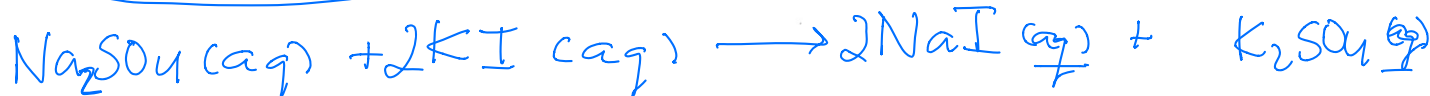
* PHASES *

Type 4. DOUBLE REPLACEMENT: $AB + XY \rightarrow AY + XB$

What to look for: two ionic compounds

How to predict the products: compounds switch ions forming 2 new ionic compounds... use table of solubilities to predict the phase (s or aq)

Examples:



Identifying the phases of the products: USING THE TABLE OF SOLUBILITIES

Soluble: The substance will form an aqueous solution and have the symbol (aq).

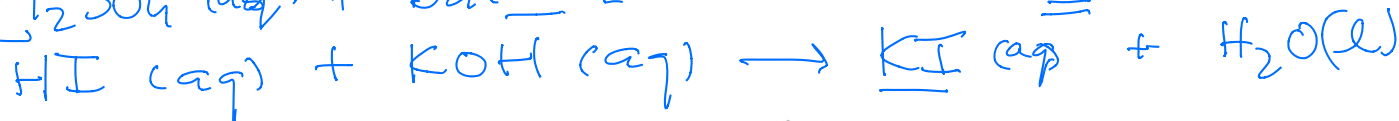
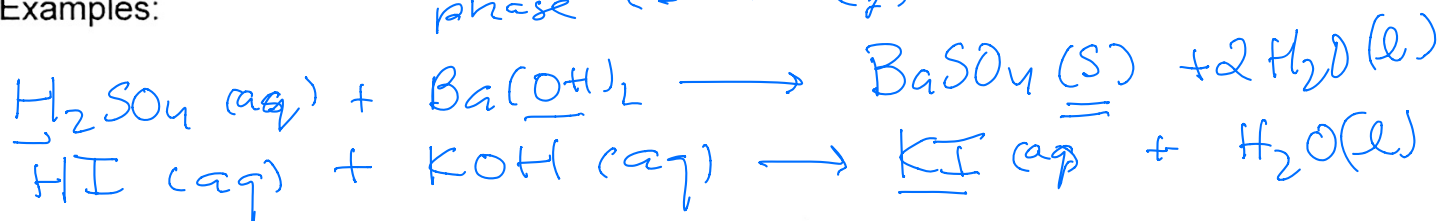
Low Solubility: The substance will form a precipitate and have the symbol (s).

TYPE 5. NEUTRALIZATION: $\text{HB} + \text{AOH} \rightarrow \text{AB} + \text{H}_2\text{O}(\text{l})$

What to look for: an acid and base react

How to predict the products: switch the ions and form a "salt" and liquid water

Examples:



TYPE 6. COMBUSTION: $\text{C}_x\text{H}_y + \text{O}_2 \rightarrow \text{CO}_2 + \text{H}_2\text{O}(\text{g})$

What to look for: oxygen and hydrocarbon react

How to predict the products: $\text{CO}_2(\text{g})$ and $\text{H}_2\text{O}(\text{g})$ always form however if the hydrocarbon contains either N or S then $\text{NO}_2(\text{g})$ and $\text{SO}_2(\text{g})$

Examples:

