

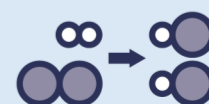


Common Ions and Formulae

Positively charged ions	
Name	Formula
Hydrogen	H ⁺
Lithium	Li ⁺
Sodium	Na ⁺
Potassium	K ⁺
Silver	Ag ⁺
Magnesium	Mg ²⁺
Calcium	Ca ²⁺
Copper	Cu ²⁺
Zinc	Zn ²⁺
Lead	Pb ²⁺
Iron	Fe ³⁺
Aluminium	Al ³⁺

Negatively charged ions	
Name	Formula
Fluoride	F ⁻
Chloride	Cl ⁻
Bromide	Br ⁻
Hydroxide	OH ⁻
Nitrate	NO ₃ ⁻
Oxide	O ²⁻
Sulfide	S ²⁻
Carbonate	CO ₃ ²⁻
Sulfate	SO ₄ ²⁻

Half chemical, ionic and half equations examples (HT only)



**The reaction between magnesium and hydrochloric acid can be represented by:**

The word equation	Magnesium + hydrochloric acid → magnesium chloride + hydrogen
The chemical equation	$\text{Mg(s)} + 2\text{HCl(aq)} \rightarrow \text{MgCl}_2\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Mg(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Mg}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

The reaction between zinc and hydrochloric acid can be represented by:

The word equation	Zinc + hydrochloric acid → zinc chloride + hydrogen
The chemical equation	$\text{Zn(s)} + 2\text{HCl(aq)} \rightarrow \text{ZnCl}_2\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Zn(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Zn}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

The reaction between iron and hydrochloric acid can be represented by:

The word equation	Iron + hydrochloric acid → iron chloride + hydrogen
The chemical equation	$\text{Fe(s)} + 2\text{HCl(aq)} \rightarrow \text{FeCl}_2\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Fe(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Fe}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Fe} \rightarrow \text{Fe}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

The reaction between magnesium and sulfuric acid can be represented by:

The word equation	Magnesium + sulfuric acid → magnesium sulfate + hydrogen
The chemical equation	$\text{Mg(s)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{MgSO}_4\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Mg(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Mg}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

The reaction between zinc and sulfuric acid can be represented by:

The word equation	Zinc + sulfuric acid → zinc sulfate + hydrogen
The chemical equation	$\text{Zn(s)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{ZnSO}_4\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Zn(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Zn}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Zn} \rightarrow \text{Zn}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

The reaction between iron and sulfuric acid can be represented by:

The word equation	Iron + sulfuric acid → iron sulfate + hydrogen
The chemical equation	$\text{Fe(s)} + \text{H}_2\text{SO}_4\text{(aq)} \rightarrow \text{FeSO}_4\text{(aq)} + \text{H}_2\text{(g)}$
The ionic equation	$\text{Fe(s)} + 2\text{H}^+\text{(aq)} \rightarrow \text{Fe}^{2+}\text{(aq)} + \text{H}_2\text{(g)}$
The two half equations	$\text{Fe} \rightarrow \text{Fe}^{2+} + 2\text{e}^-$ (oxidation), and $2\text{H}^+\text{(aq)} + 2\text{e}^- \rightarrow \text{H}_2\text{(g)}$ (reduction)

