

Solutions

Each answer shows the steps, then the **result**.

2.1

- two Cl^- balance one Mg^{2+}
- MgCl_2

2.2

- (aq) means **aqueous** — dissolved in water

3.1 B

- one Ca^{2+} needs two NO_3^-
- $\text{Ca}(\text{NO}_3)_2$

3.2

- zinc + hydrochloric acid $\rightarrow$ zinc chloride + hydrogen
- $\text{Zn}(s) + 2\text{HCl}(aq) \rightarrow \text{ZnCl}_2(aq) + \text{H}_2(g)$

3.3

- strong acid + strong alkali: H^+ and OH^- make water
- $\text{H}^+(aq) + \text{OH}^-(aq) \rightarrow \text{H}_2\text{O}(l)$
- spectator ions: Na^+ and Cl^-