

Balancing Equations

1. Balance the following equations by equalising the atom numbers on both sides of the equation.

- (a) $\text{H}_2 + \text{F}_2 \longrightarrow \text{H F}$
- (b) $\text{N}_2 + \text{O}_2 \longrightarrow \text{N O}_2$
- (c) $\text{Ca} + \text{O}_2 \longrightarrow \text{Ca O}$
- (d) $\text{Na} + \text{Br}_2 \longrightarrow \text{Na Br}$

2. Which of the following equations are not balanced?

- (a) $\text{C} + \text{O}_2 \longrightarrow \text{C O}_2$
- (b) $\text{Al} + \text{O}_2 \longrightarrow \text{Al}_2 \text{O}_3$
- (c) $\text{C} + \text{Cl}_2 \longrightarrow \text{C Cl}_4$
- (d) $\text{H Cl} + \text{Na OH} \longrightarrow \text{Na Cl} + \text{H}_2\text{O}$

3. Balance the following equations by equalising the atom numbers on both sides of the equation.

- (a) $\text{H}_2 + \text{O}_2 \longrightarrow \text{H}_2\text{O}$
- (b) $\text{N}_2 + \text{H}_2 \longrightarrow \text{N H}_3$
- (c) $\text{N}_2 + \text{O}_2 \longrightarrow \text{N O}$
- (d) $\text{Ca} + \text{O}_2 \longrightarrow \text{Ca O}$
- (e) $\text{Na} + \text{Cl}_2 \longrightarrow \text{Na Cl}$
- (f) $\text{H}_2 + \text{O}_2 \longrightarrow \text{H}_2 \text{O}_2$
- (g) $\text{Al} + \text{O}_2 \longrightarrow \text{Al}_2\text{O}_3$
- (h) $\text{N}_2 + \text{Cl}_2 \longrightarrow \text{N Cl}_3$
- (i) $\text{Mg} + \text{H}_2 \text{SO}_4 \longrightarrow \text{Mg SO}_4 + \text{H}_2$
- (j) $\text{H}_2\text{O} + \text{S O}_2 \longrightarrow \text{H}_2 \text{SO}_4$

- (k) $\text{C} + \text{Cl}_2 \longrightarrow \text{C Cl}_4$
- (l) $\text{P}_4 + \text{Cl}_2 \longrightarrow \text{P Cl}_3$
- (m) $\text{Pb (OH)}_2 \longrightarrow \text{Pb O} + \text{H}_2\text{O}$
- (n) $\text{Ca (OH)}_2 + \text{S O}_2 \longrightarrow \text{Ca SO}_4 + \text{H}_2\text{O}$
- (o) $\text{C}_2 \text{H}_4 + \text{O}_2 \longrightarrow \text{C O}_2 + \text{H}_2\text{O}$
- (p) $\text{Mg} + \text{C O}_2 \longrightarrow \text{Mg O} + \text{C}$
- (q) $\text{H}_2 \text{O}_2 \longrightarrow \text{H}_2\text{O} + \text{O}_2$
- (r) $\text{Fe}_2 \text{O}_3 + \text{C} \longrightarrow \text{Fe} + \text{C O}$
- (s) $\text{P H}_3 + \text{O}_2 \longrightarrow \text{P}_2\text{O}_3 + \text{H}_2\text{O}$
- (t) $\text{P H}_5 + \text{O}_2 \longrightarrow \text{P}_2 \text{O}_5 + \text{H}_2\text{O}$