

Solutions

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

2.1

- It is not a measurable starting reactant; the rate law must be in terms of reactants

2.2

- reverse (backward)

2.3

- $\text{rate} = k[\text{NO}]^2[\text{O}_2]$

3.1 B

- the fast pre-equilibrium step

3.2

(a)

- $\text{rate} = k[\text{B}][\text{C}]$

(b)

- since $[\text{B}] \propto [\text{A}]$, $\text{rate} = k'[\text{A}][\text{C}]$

3.3

- The fast reversible step reaches equilibrium **before** the slow step consumes its product, so an equilibrium is established ahead of the rate-determining step