

Solutions

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

2.1

- A species made in one step and consumed in a later step (not in the overall equation)

2.2

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

2.3

- An intermediate

3.1 B

- an elementary step's rate law uses its coefficients: $k[\text{NO}]^2$

3.2

(a)

- X

(b)

- Adding the steps, X cancels: $\text{A} + \text{B} \rightarrow \text{C}$

3.3

- The overall equation may hide several steps, so its coefficients need not match the true dependence; an elementary step **is** a single collision event, so its molecularity gives its rate law directly