

Solutions

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

2.1

- The slowest step in the mechanism, which sets the overall rate

2.2

- Step 1 (the slow step)

2.3

- No — it is limited by the slow step

3.1 B

- the slowest step

3.2

(a)

- Step 1

(b)

- $\text{rate} = k[\text{NO}_2]^2$ (from the slow elementary step)

3.3

- The overall reaction can only proceed as fast as its slowest bottleneck; a faster fast-step just waits on the slow step, so the total time barely changes