

Solutions

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

2.1

- Second order in A; first order in B

2.2

- First order

2.3

- No — orders are found by experiment

3.1 C

- $2^m = 4 \Rightarrow m = 2$

3.2

(a)

- A: exp 1
- 2 doubles [A], rate doubles
- order 1; B: exp 1
- 3 doubles [B], rate $\times 4$
- order 2

(b)

- $\text{rate} = k[\text{A}][\text{B}]^2$

3.3

- $2 = k(0.1)(0.1)^2 = k(0.001); k = 2000 \text{ L}^2\text{mol}^{-2}\text{s}^{-1}$