

Solutions

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

2.1

- $\ln[A]$ vs t

2.2

- $t_{1/2} = \frac{0.693}{0.100} = 6.93 \text{ s}$

2.3

- No — it is constant (independent of starting concentration)

3.1 C

- a linear $\frac{1}{[A]}$ plot means second order

3.2

(a)

- $k = \frac{0.693}{30} = 0.0231 \text{ s}^{-1}$

(b)

- 60 s is two half-lives, so $\left(\frac{1}{2}\right)^2 = \frac{1}{4}$ remains

3.3

- First order; the slope of the $\ln[A]$ vs t line is $-k$