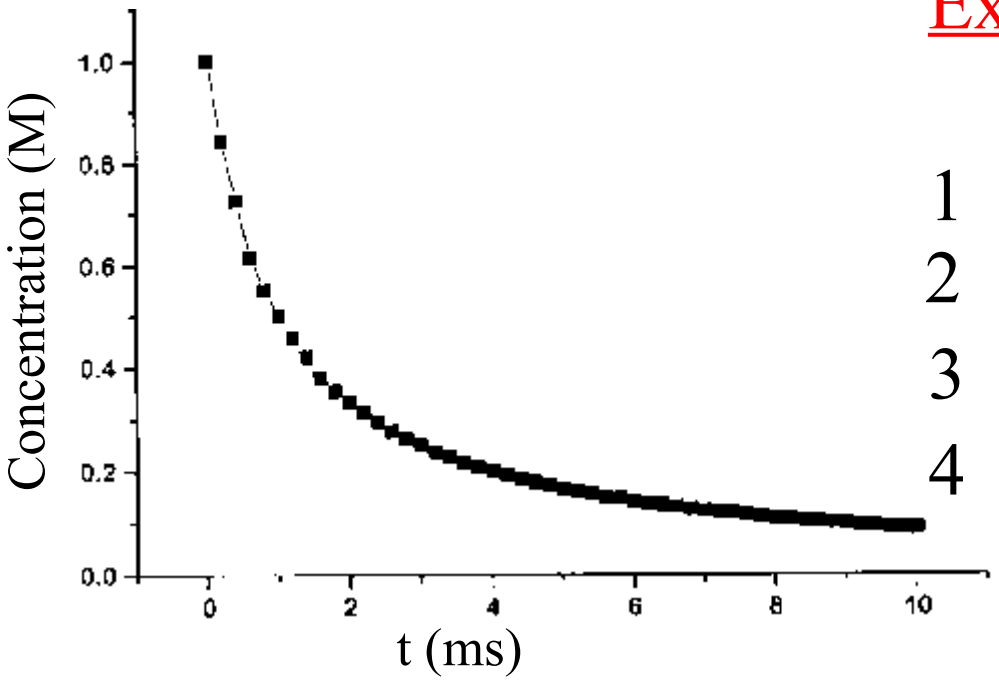

Exp	$[A]_i$ (M)	$[B]_i$ (M)	initial rate ($M\ s^{-1}$)
1	1.0	1.0	1.0×10^{-3}
2	2.0	1.0	2.0×10^{-3}
3	1.0	2.0	2.0×10^{-3}
4	2.0	2.0	4.0×10^{-3}

$$\frac{\text{rate 2}}{\text{rate 1}} = \frac{2.0 \times 10^{-3}}{1.0 \times 10^{-3}} = \frac{[2.0]^a}{[1.0]^a}$$

a = 1 1st order in [A]

$$\frac{\text{rate 3}}{\text{rate 1}} = \frac{2.0 \times 10^{-3}}{1.0 \times 10^{-3}} = \frac{[2.0]^b}{[1.0]^b}$$

b = 1 1st order in [B]

rate = k [A] [B] 2nd order reaction