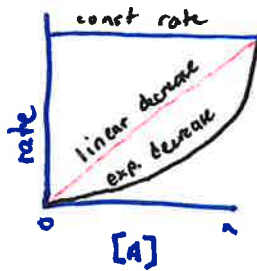
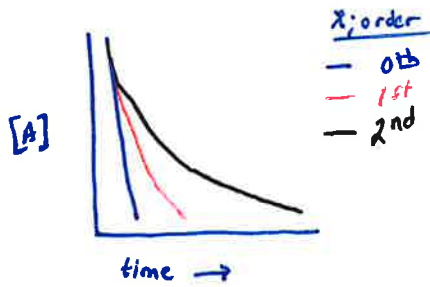


k is rate constant  
 ① Rxn dependent specific } Arrhenius Eqn.  
 ② Temp dependent



$\text{rate} = k[A]^m[B]^n$       or       $\text{rate} = k[A][B]$   
 $m+n = \text{order of rxn}$

~~scribble~~

~~scribble~~

~~scribble~~

~~scribble~~

~~scribble~~

Multi-Step (Complex) Rxn

Elementary Rxn



$\text{rate} = k_1[\text{NO}_2]^2$



$\text{rate} = k_2[\text{NO}_3][\text{CO}]$

$\text{rate} = k[\text{NO}_2][\text{CO}]$  ← wrong!

$\text{rate} = k[\text{NO}_2]^2[\text{CO}]^0$   
 $= k[\text{NO}_2]^2$  ← right!

Determine orders via method of initial rates!

"rate multiplier" = "concentration multiplier"  $\times$

H<sub>2</sub>O<sub>2</sub> Example

Exp 2 & 3  
 $2 = 2^x$   
 $x = 1$

Practice

Exp. 1 & 3

$4 = 2^x$   
 $x = 2$

Exp 1 & 2

$2 = 2^x$   
 $x = 1$