3/28/13

QUIZ The rate constant for mystery reaction is $4.5 \times 10^{-3}\ M\,s^{-1}$
By what order does this reaction proceed?

- 0 order.

rate $\left(\frac{M}{s}\right) = K[A]^x[B]^y$

$\frac{M}{s}$ same as rate.

- The value of K could be determined:
- by determining the slope of line from a plot of ln[N_2O_5] versus t. The value of K is opposite from slope.

rate = K[A][B]

A + B → C

[A] = .01 → 0

[B] 5 → 4.99

rate = $\underbrace{5 \times K}_{\text{constant}}[A]$

MM	mM
10^{-6}	10^{-3}

$CO(g) + H_2O(g) \rightarrow CO_2(g) + H_2(g)$

rate = K[H_2O][CO]

$[CO]_0 = 0.01M$

$[H_2O]_0 = 0.01M$

- For pseudo you have diff. concentrations, but same rate.

Why is plot of ln[CO] not straight line?

because both [CO] & [H_2O] are changing.

You only have straight line when only 1 of reactants changing.

$CO(g) + H_2O(g) \rightarrow CO_2(g) + H_2(g)$

rate = $K[H_2O][CO]$

$[CO]_0$ = 0.01M

$[H_2O]_0$ 2.00M

What is the plot of ln [CO] now a steep straight line?

- $[H_2O]$ is nearly straight line

- For initial concentration of

$[CO]_0$ = 0.01M

$[H_2O]_0$ = 2.00M

What is concentration of H_2O at very long times. gone to completion?

1.99 didn't change very much.

- rate = $K'[CO]$.

↓ $K[H_2O]$.