

PS14
3rd order (3^o) $K = \frac{1}{M^2 \cdot \text{sec}}$

$\frac{M}{l} = \frac{\text{Mole}}{l}$

$\frac{1}{\frac{\text{Mole}^2}{l^2} \cdot \text{sec}} = \frac{l^2}{\text{Mole}^2 \cdot \text{sec}}$

$= l^2 \cdot \text{Mole}^{-2} \cdot \text{sec}^{-1}$

Feb 6-7:40 AM

② $-\frac{1}{3} \frac{\Delta[\text{H}_2]}{\Delta t} = \frac{1}{2} \frac{\Delta[\text{NH}_3]}{\Delta t}$

$-\frac{2}{3} \frac{\Delta[\text{H}_2]}{\Delta t} = \frac{\Delta[\text{NH}_3]}{\Delta t}$

$\frac{2}{3} (1.72)$

Feb 6-7:52 AM

⑤ $\ln A_t = -Kt + \ln A_0$
 $\ln A_t = \underbrace{(-3.4 \times 10^{-3})}_{\text{Sec}} \underbrace{(120)}_{\text{Sec}} + \ln(0.5)$

⑥ $0.8\text{M} \xrightarrow{1} 0.4 \xrightarrow{2} 0.2$

$t_{1/2} = \frac{0.693}{k}$ $1^\circ = t_{1/2}$ never changes.

$t_{1/2} = \frac{1}{k[A]}$ 2°
 $1 \rightarrow \frac{1}{2} \rightarrow \frac{1}{4}$

Feb 6-7:57 AM

⑦ $1^\circ \ln A_t = -Kt + \ln A_0$

$\ln\left(\frac{1}{4}\right) = (-5.2 \times 10^{-3})t + \ln 1$

$t = -266 \text{ sec}$

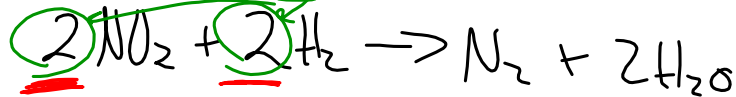
$t_{1/2} = \frac{0.693}{k}$
 $1 \rightarrow \frac{1}{2} \rightarrow \frac{1}{4}$
 2 HL's
 $t_{1/2} = \frac{0.693}{k}$
 $= \frac{0.693}{5.2 \times 10^{-3}}$
 $= 133 \text{ sec} \quad | \text{ HL}$
 $\times 2$
 266 sec

Feb 6-8:02 AM

$$\textcircled{10} \text{ Rate} = k [\text{NO}_2]^2 [\text{H}_2]^1$$

$$(0.5)^2 (0.5)^1 = 0.125$$

rate of disappearance \Rightarrow



Use 50% Use 50%

lil

Mole ratio

$\textcircled{12.5\%}$

Feb 6-8:07 AM

$$\textcircled{11} \quad 1.5^x = 2.3$$

$$\ln 1.5^x = \ln 2.3$$

$$\frac{x \ln 1.5}{\ln 1.5} = \frac{\ln 2.3}{\ln 1.5}$$

Feb 6-8:11 AM

$$\textcircled{12} \quad \ln A_t = -Kt + \ln A_0$$

$$\ln A_t = -(3.4)(1) + \cancel{\ln 1}$$

Feb 6-8:12 AM

$$\textcircled{17} \quad \frac{1}{A_t} = Kt + \frac{1}{A_0}$$

90% used
10% left
~~0.1(0.1) = 0.01~~

$$\frac{1}{0.01} = (0.014)t + \frac{1}{0.1}$$

$$t = 6428.57 \text{ sec.}$$

Feb 6-8:20 AM

$$\textcircled{18} \quad t_{1/2} = \frac{1}{k[A_0]}$$

$$46 = \frac{1}{k(0.040)}$$

$$k = \frac{1}{46(0.040)} =$$

Feb 6-8:25 AM