PSK (4) $K \rightarrow \frac{1}{K}$ (2) $\rightarrow \left(\frac{1}{K}\right)^2$ (5)

EQN #2 = Flip + double

EQN #2 Flip, double $K \rightarrow \frac{1}{K} \rightarrow \left(\frac{1}{K}\right)^2$

$2S_{(s)} + 2O_{2(g)} \rightleftharpoons 2SO_{2(g)}$ $\left(\frac{1}{2.5\times10^{-53}}\right)^2$

$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ $\left(\frac{1}{4\times10^{-13}}\right)^2$

$2S_{(s)} + 3O_{2(g)} \rightleftharpoons 2SO_{3(g)}$

Mar 4-7:15 AM

$\left(\frac{1}{2.5\times10^{-53}}\right)^2 * \left(\frac{1}{4\times10^{-13}}\right)^2$

$\left[\frac{1}{6.25\times10^{-106}}\right] * \left[\frac{1}{16\times10^{-26}}\right]$

0.16×10^{106} 0.0625×10^{26}

$1.6\times10^{105} * 6.25\times10^{24}$

$10 * 10^{129}$

1×10^{130}

Mar 4-8:19 AM

⑦ $2BrCl \rightleftarrows Br_2 + Cl_2$ $K=32$

$$Q = \frac{[Br_2][Cl_2]}{[BrCl]^2} = \frac{(0.05)(0.05)}{(0.05)^2} = 1$$

$Q=1$ < $K=32$

Rxt then →

Mar 4-8:25 AM

⑧ $1H_2 + 1I_2 \rightleftarrows 2HI$ $K_p=54$

$PV=nRT$

$P=\frac{n}{V}RT$

$P=MRT$

$K_p = K_c(RT)^{\Delta n}$

$K_c = \frac{K_p}{(RT)^{\Delta n}}$ $K_c = K_p$

$K_c = K_p(RT)^{-\Delta n}$

Δn = Moles prod − Moles react

$2 - (1+1) = 0$

$(RT)^0 = 1$

Mar 4-8:31 AM

⑨ $3N_2H_4 + 4ClF_3 \rightleftharpoons 12HF + 3N_2 + 2Cl_2$

	$3N_2H_4$	$4ClF_3$	$12HF$	$3N_2$	$2Cl_2$
I	0.88 M	0.88 M	0	0	0
MOLE RATIO Δ	−	→ 0.70	+	+0.525	+
E		0.18		0.525 M	

MOLE RATIO

$$\frac{3}{4} = \frac{0.525}{x}$$

Mar 4-8:35 AM

⑩ $1N_2 + 3H_2 \rightleftharpoons 2NH_3 \quad K_p = 6.8 \times 10^5$

Δn = prod − react

$= 2 - (3+1)$

$= -2$

$K_p = K_c(RT)^{\Delta n}$

$(6.8 \times 10^5) = K_c((0.08206)(298))^{-2}$

$\frac{6.8 \times 10^5}{1} = \frac{K_c}{[(0.08206)(29)]^2}$

$K_c = 4.07 \times 10^8$

Mar 4-8:40 AM

(12) $2NOCl \rightleftharpoons 2NO + Cl_2$ $K_c = 0.51$

$$Q = \frac{[NO]^2[Cl_2]}{[NOCl]^2} = \frac{(1.2)^2(0.6)}{(1.3)^2} = Q = 0.51$$

AT EQUILIB
[ ] don't Δ

Mar 4-8:45 AM

(14) $4PCl_3 \rightleftharpoons P_4 + 6Cl_2$

	$4PCl_3$	P_4	$6Cl_2$
I	1	0	0
MOLE RATIO Δ	$-4x$	$+x$	$+6x$
E	$1-4x$	x	$6x$

$$K = \frac{(P_4)(Cl_2)^6}{(PCl_3)^4} = \frac{(x)(6x)^6}{(1-4x)^4}$$

Mar 4-8:52 AM

(15) $1NH_3(g) + 1H_2S(g) \rightleftharpoons 1NH_4HS(s)$ $K_c = 9.7$

	NH_3	H_2S	NH_4HS
I	1	1	~~0~~
Δ (mole ratio)	$-x$	$-x$	$+x$
E	$1-x$ (0.32)	$1-x$	x

$$K_c = \frac{1}{(NH_3)(H_2S)} = \frac{1}{(1-x)(1-x)} = \frac{9.7}{1}$$

Mar 4-8:56 AM

$$\frac{1}{(1-x)(1-x)} = \frac{9.7}{1}$$

$$\frac{1}{x^2-2x+1} = \frac{9.7}{1}$$

$1-x$

0.32

$$9.7x^2 - 19.4x + 9.7 = 1$$

$$9.7x^2 - 19.4x + 8.7 = 0$$

$x = 0.68$

$x = 1.32$ ~~1.32~~

Mar 4-9:00 AM

(17) $2\,\text{mole}_{(g)} \rightleftharpoons 3\,\text{mole}_{(g)}$

If ↑P Affect Prod. More!

←

Mar 4-9:04 AM

(21) $N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)}$

a) ↓V container ↑P $4_{(g)} \rightleftharpoons 2_{(g)}$ →

b) ↑P add Ar

c) remove NH_3 [Start / Δ] : if remove NH_3 → NH₃ ↗ / Δ

d) Add N_2, ↑P

e) Add H_2 → Add reqt Stress ① Shift →

Mar 4-9:07 AM

2020 Exam 1

① $A \rightarrow 2C$

$$-\frac{1}{1}\frac{\Delta[A]}{\Delta t} = \frac{1}{2}\frac{\Delta[C]}{\Delta t}$$

$$-2\frac{\Delta[A]}{\Delta t} = \frac{\Delta[C]}{\Delta t}$$

Mar 4-9:14 AM

② $\text{Rate} = k[M]^{1}[Z]^{1}$

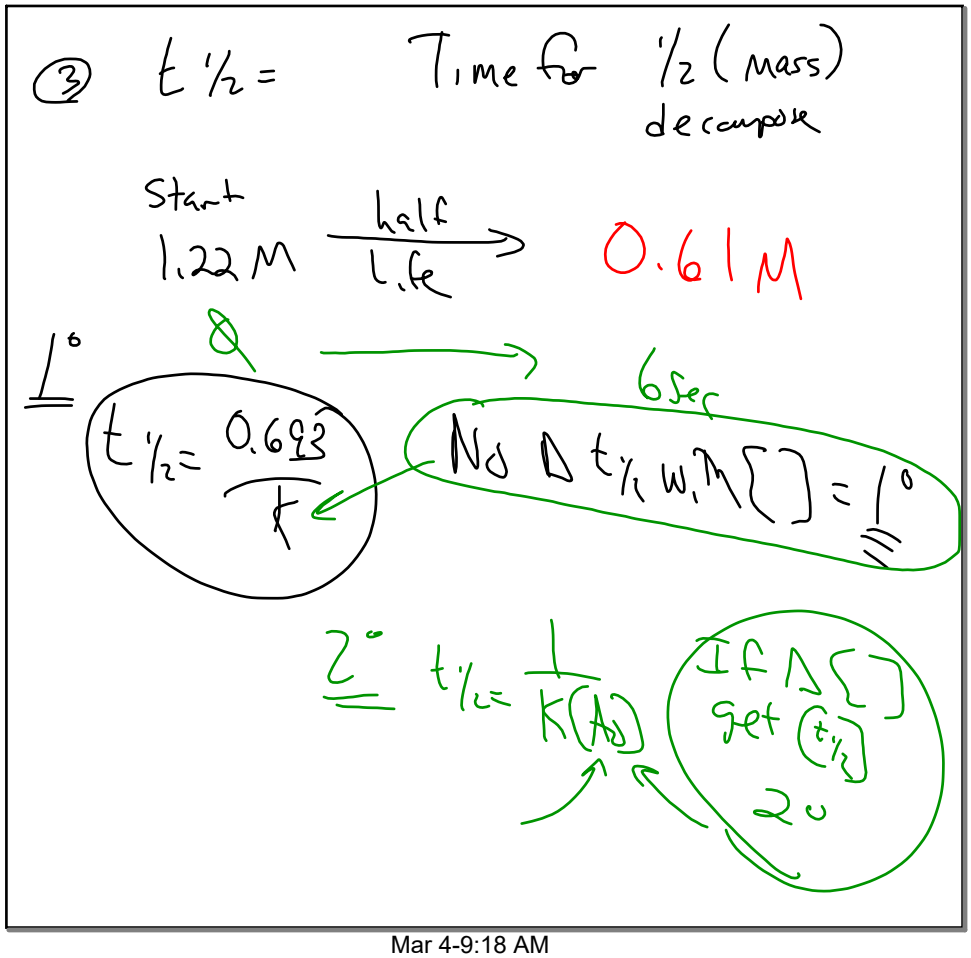
Z constant

	M	Rate
1→2	2^{1}	$= 2$

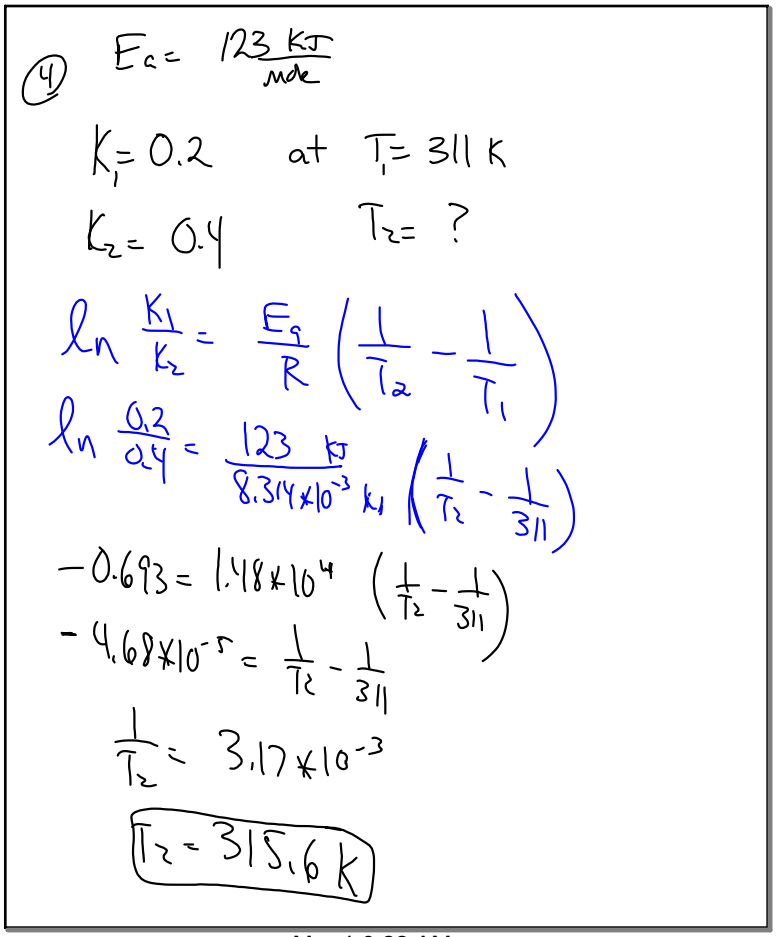
M is constant

	Z	rate
2→3	2^{1}	$= 2$

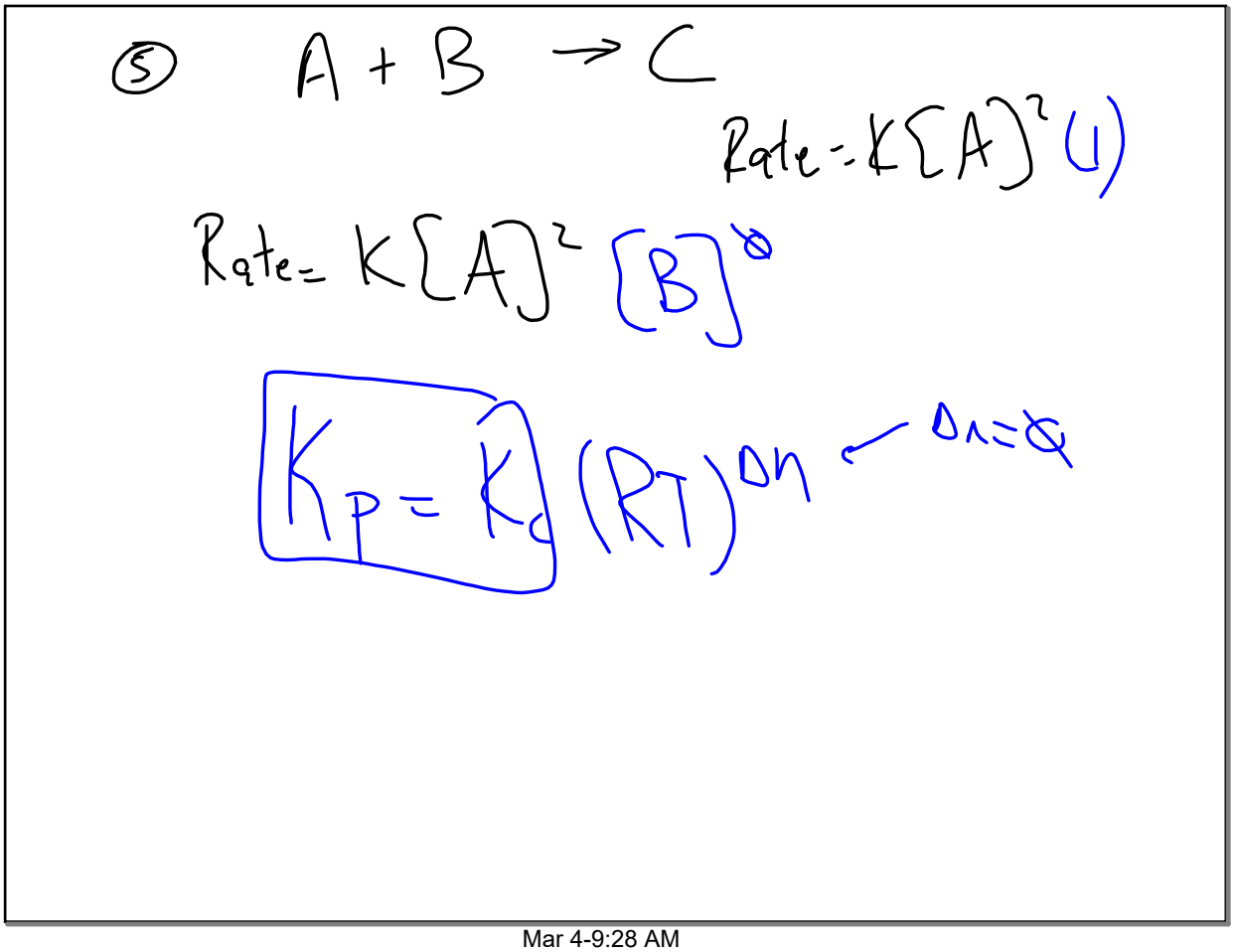
Mar 4-9:15 AM



Mar 4-9:18 AM



Mar 4-9:22 AM



Mar 4-9:28 AM