PS 15

$K_c = 9.7$

(16) $NH_{3(g)} + H_2S_{(g)} \rightleftarrows NH_4HS_{(s)}$

	NH_3	H_2S	NH_4HS
I	2M	2M	0
Δ	−x	−x	+x
E	2−x (0.3)	2−x (0.3)	x

x = 1.7 M — moles? → M×L

0.34 mole

$K_c = \frac{1}{[NH_3][H_2S]}$

$\frac{9.7}{1} = \frac{1}{(2-x)(2-x)}$

$\frac{9.7}{1} = \frac{1}{x^2-4x+4}$

$9.7x^2 - 38.8x + 38.8 = 1$

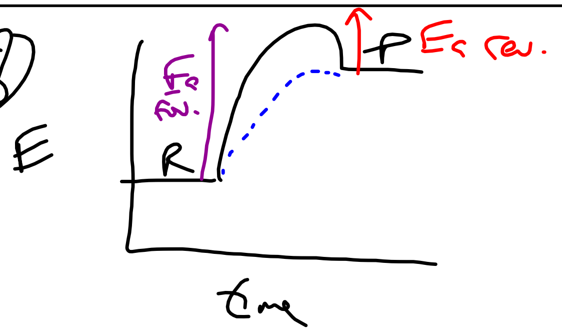
$9.7x^2 - 38.8x + 37.8 = 0$

$x_1 = 2.3$

$x_2 = 1.7$

Feb 13-7:36 AM

(18)



$K_c = \frac{[P]}{[R]}$

R + heat → P

As ↑T, form more P. K_c ↑

Feb 13-8:04 AM

(20) $CO + 3H_2 \rightleftharpoons CH_4 + H_2O + 206\,kJ$

4 moles (g) → 2 mole (g)

Want HIGH P

Decr. T

Feb 13-8:10 AM

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

$= 1.58 \times 10^{-8} \left[0.08206 (298) \right]^3$

Feb 13-8:17 AM

(24) $NH_4HS_{(s)} \rightleftharpoons NH_{3(g)} + H_2S_{(g)}$

$K_c = 1.6 \times 10^{-4}$

		NH_3	H_2S
I	?	0.8 M mole	Q
Δ	−x	+x	+x
E	x	0.8+x	x

0.8+0.0002

0.8002

$K_c = \frac{[NH_3][H_2S]}{1}$

$(0.8+x)(x) = 1.6 \times 10^{-4}$

$x^2 + 0.8x - 1.6 \times 10^{-4} = 0$

$x = 2 \times 10^{-4}$

Feb 13-8:19 AM

Sp Ex #1297

how much if left / have now:

(2) $\ln A_t = -kt + \ln A_0$

$\ln 0.15 = -k(79) + \ln 1$

(3) $\frac{1}{A_t} = kt + \frac{1}{A_0}$

$\frac{1}{0.125} = (0.47)t + \frac{1}{0.25}$

Feb 13-8:35 AM

(B) $HCl + CH_3CHCH_2 \rightarrow CH_3CHCH_3^+$ (slow)

$CH_3CHCH_3^+ + Cl^- \rightarrow CH_3CHClCH_3$ (fast)

(8) $Rate = k[M]^{1}[Z]^{1}$

$1 \rightarrow 2 \quad 2^1 = 2$

$2 \rightarrow 3 \quad 2^1 = 2$

Feb 13-8:51 AM

(9) $\ln \frac{K_1}{K_2} = \frac{E_a}{R}\left(\frac{1}{T_2} - \frac{1}{T_1}\right)$

$\ln \frac{3}{1} = \frac{E_a}{8.314 \times 10^{-3}}\left(\frac{1}{293} - \frac{1}{313}\right)$

$K_1 = 3 \quad T_1 = 40°C$

$K_2 = 1 \quad T_2 = 20°C$

kJ

Feb 13-8:57 AM

(13) $C_6H_6 + 3H_2 \rightleftharpoons C_6H_{12}$

	C_6H_6	$3H_2$	C_6H_{12}
I	1 mole	3 mole	0
Δ	−	− 3(0.137)	+ 0.137
E		2.589 moles	0.137 moles

molesss

KISS

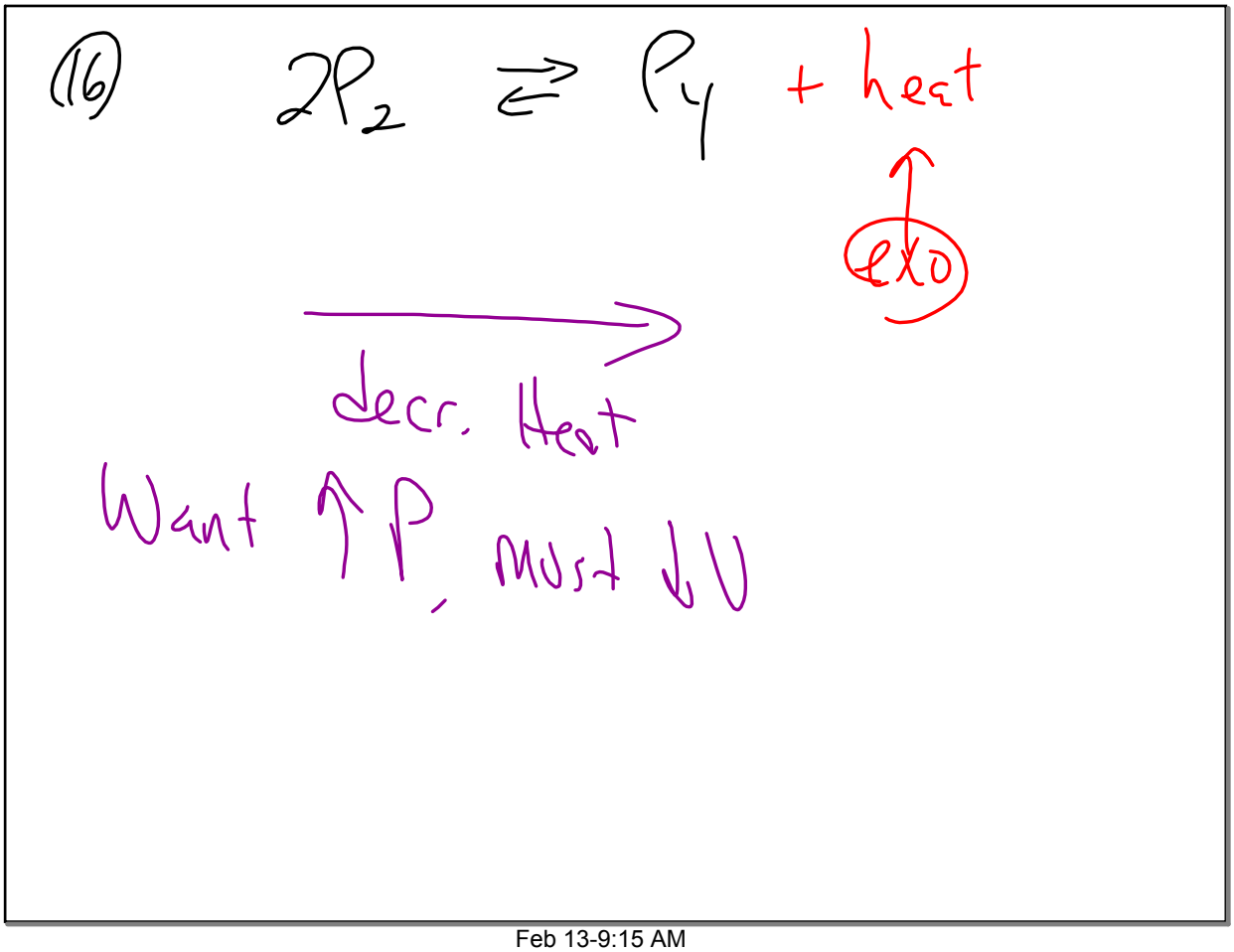
Feb 13-9:08 AM

(14) $I_2 + Br_2 \rightleftharpoons 2IBr$

	I_2	Br_2	$2IBr$
I	0.5	0.5	0
Δ	−0.42	−0.42	+ 0.84
E	0.08	0.08	0.84

$$K_c = \frac{(IBr)^2}{(I_2)(Br_2)} = \frac{(0.84)^2}{(0.08)^2} = 110.5$$

Feb 13-9:12 AM



Feb 13-9:15 AM