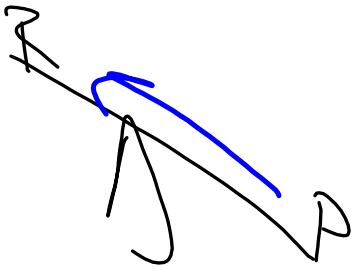
$$K = \frac{[Prod]}{[React]}$$

$Q < K$

$Q > K$



Feb 22-7:39 AM

(3) $K_c = \frac{[HI]^2}{[H_2][I_2]} = \_\_\_\_\_$

$\frac{54}{1} = \frac{(HI)^2}{(0.021)(0.013)}$

Feb 22-7:51 AM

(4) $2S_{(s)} + 2O_{2(g)} \rightleftharpoons 2SO_{2(g)}$ $\left(\frac{1}{2.5\times10^{-53}}\right)^2 K_1$

$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ $\left(\frac{1}{4.0\times10^{-13}}\right)^2 K_2$

$2S_{(g)} + 3O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ $K = K_1 * K_2$

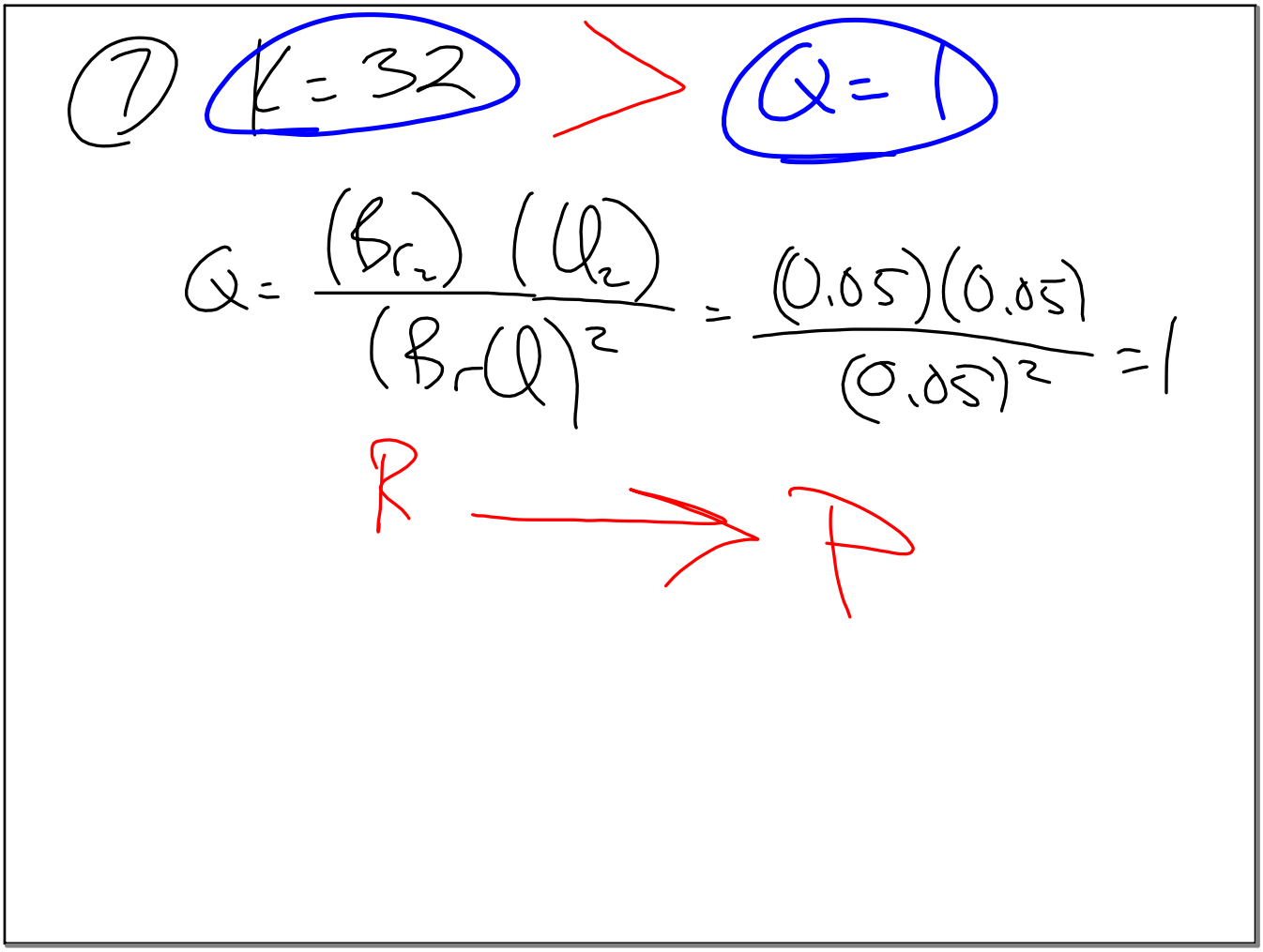
$K_1 \quad * \quad K_2$

$(0.4\times10^{53})^2 * (0.25\times10^{13})^2 =$

$(0.16\times10^{106})(0.0625\times10^{26}) =$

0.01×10^{132}

$K = \boxed{1\times10^{130}}$



Feb 22-8:09 AM

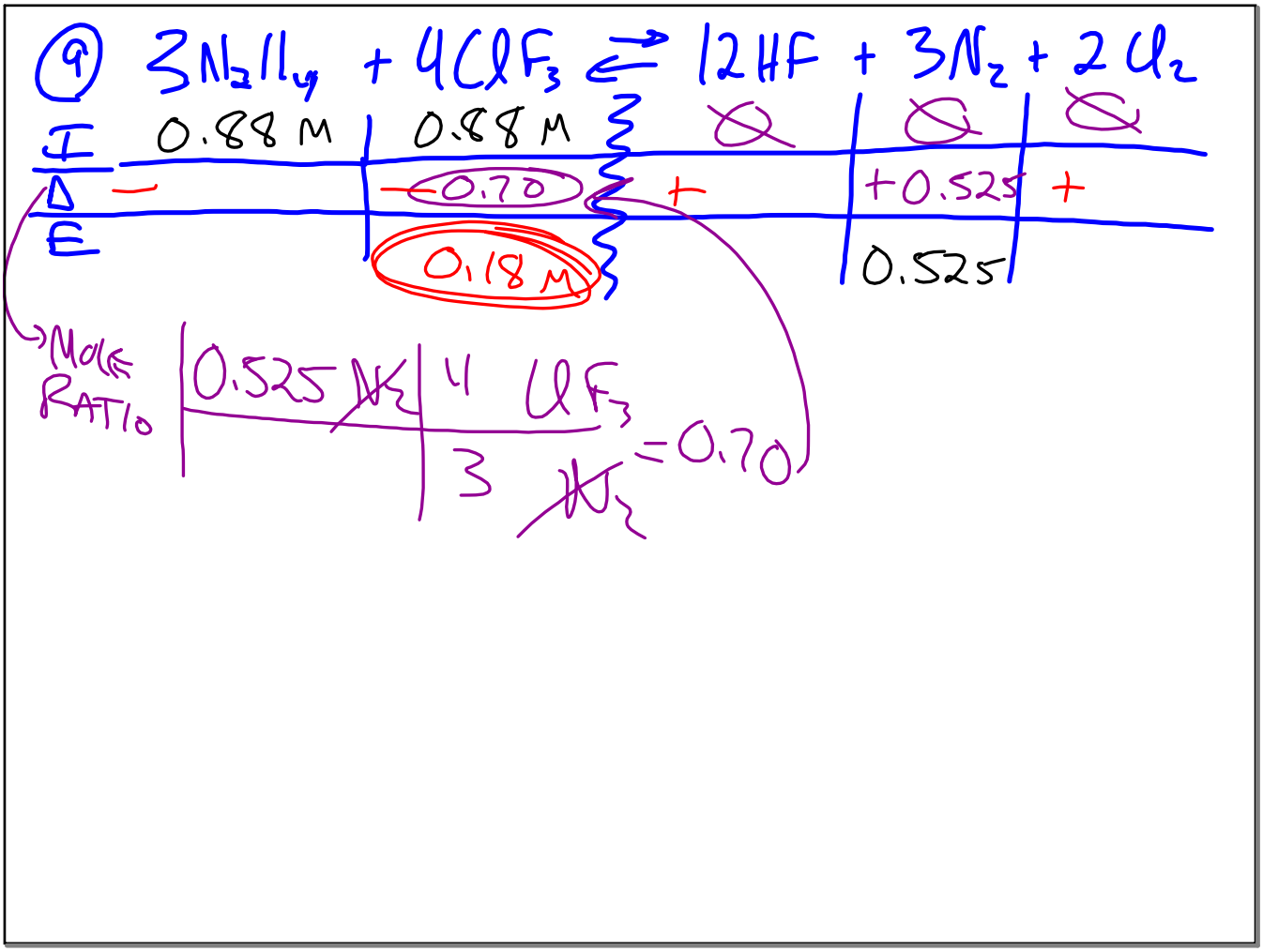
8

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

$$K_p = K_c (RT)^{0}$$

$$K_p = K_c$$

Feb 22-8:06 AM


9
3 N2H4 + 4 ClF3 ⇌ 12 HF + 3 N2 + 2 Cl2
I
0.88 M
0.88 M
Δ
−
−0.70
+
+0.525
+
E
0.18 M
0.525
MOLE RATIO
0.525 M
4 ClF3
3 N2
= 0.70

Feb 22-8:15 AM

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

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

$\frac{6.8 \times 10^5}{1} = \frac{K_c}{\left((0.08206)(298)\right)^2}$

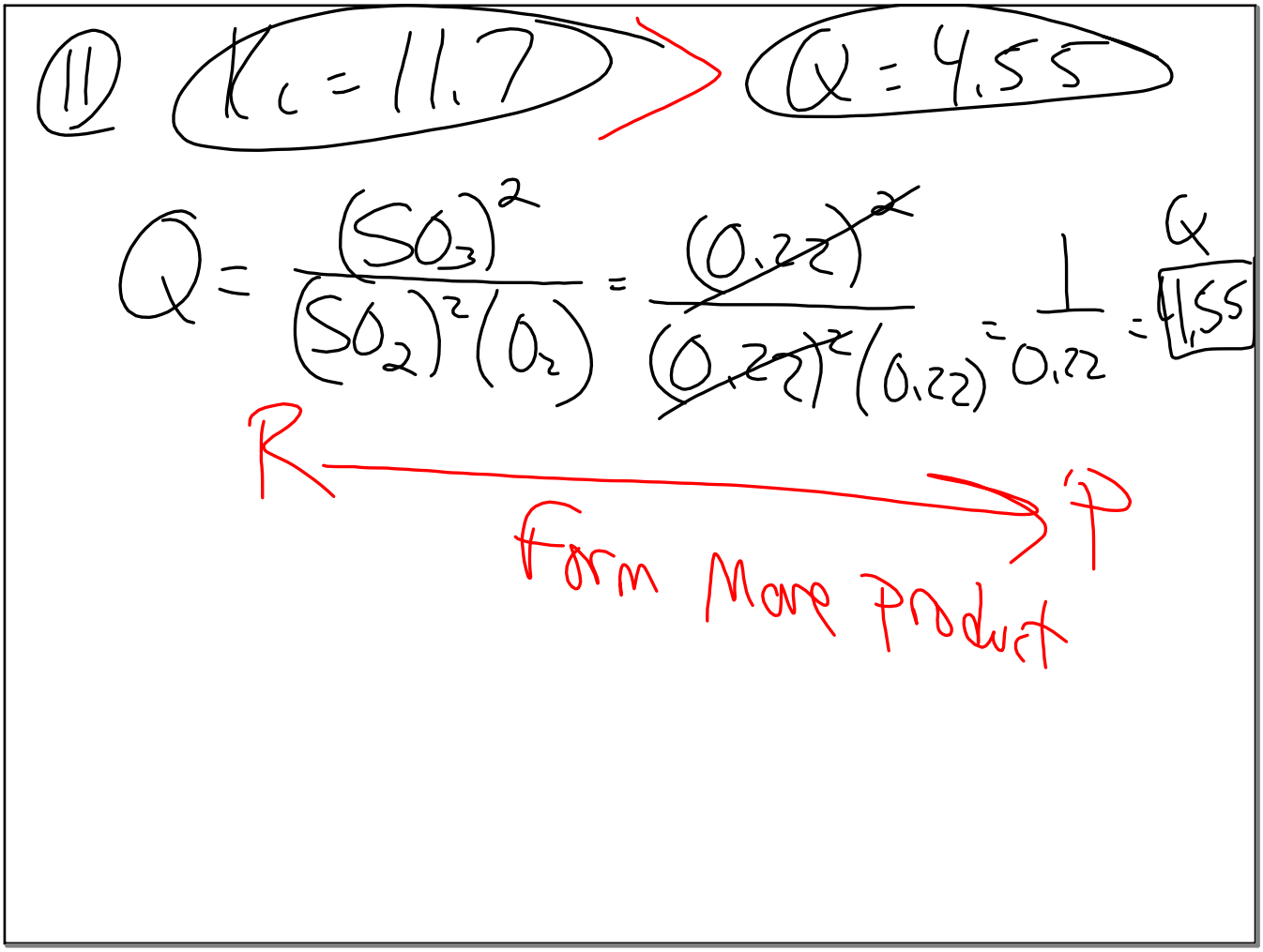
$K_c = 4.07 \times 10^6$

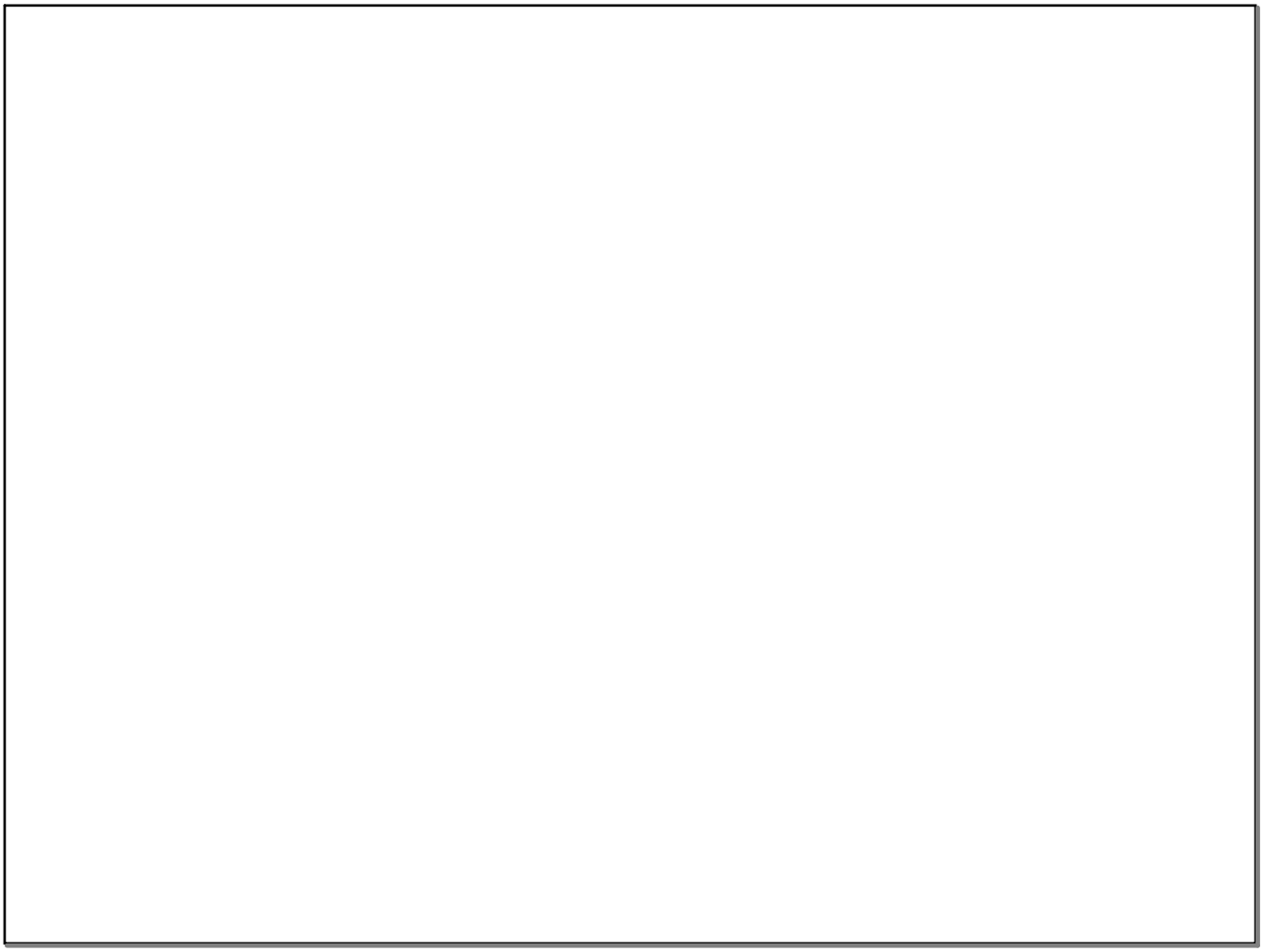
Feb 22-8:21 AM

$$K_p = K_c (RT)^{\Delta n} \quad \left\{ \quad \frac{K_p}{1} = \frac{K_c}{(RT)^{\Delta n}} \right.$$

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

Feb 22-8:23 AM


11
$K_c = 11.7$
$Q = 4.55$
$Q = \frac{(SO_3)^2}{(SO_2)^2(O_2)} = \frac{(0.22)^2}{(0.22)^2(0.22)} = \frac{1}{0.22} = 4.55$
Q
R
P
Form More Product



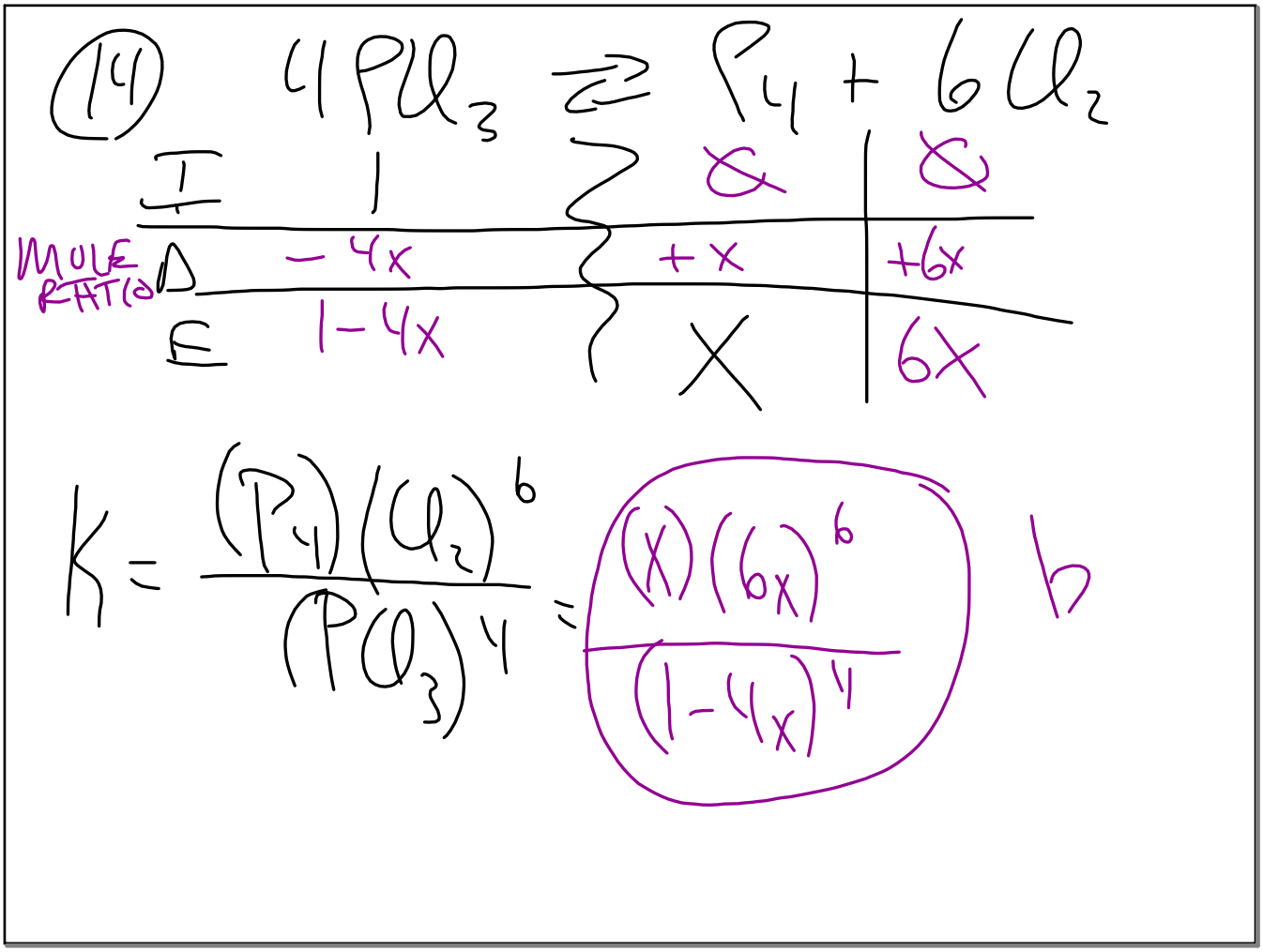
Feb 22-8:40 AM

(12) $Q = \frac{(1.2)^2(0.6)}{(1.3)^2} = 0.51$

$Q = K$

AT EQ

Feb 22-8:28 AM


(14)
$4PH_3 \rightleftharpoons P_4 + 6H_2$
I 1 0 0
MOLE RATIO Δ −4x +x +6x
E 1−4x x 6x
$K = \frac{(P_4)(H_2)^6}{(PH_3)^4} = \frac{(x)(6x)^6}{(1-4x)^4}$
b

Feb 22-8:29 AM

15

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

I	1	1		∅
Δ	−x	−x		+x
E	1−x	1−x		x
	1−0.68 = 0.32			

$$K_c = \frac{1}{(NH_3)(H_2S)} = \frac{9.7}{1} = \frac{1}{(1-x)^2}$$

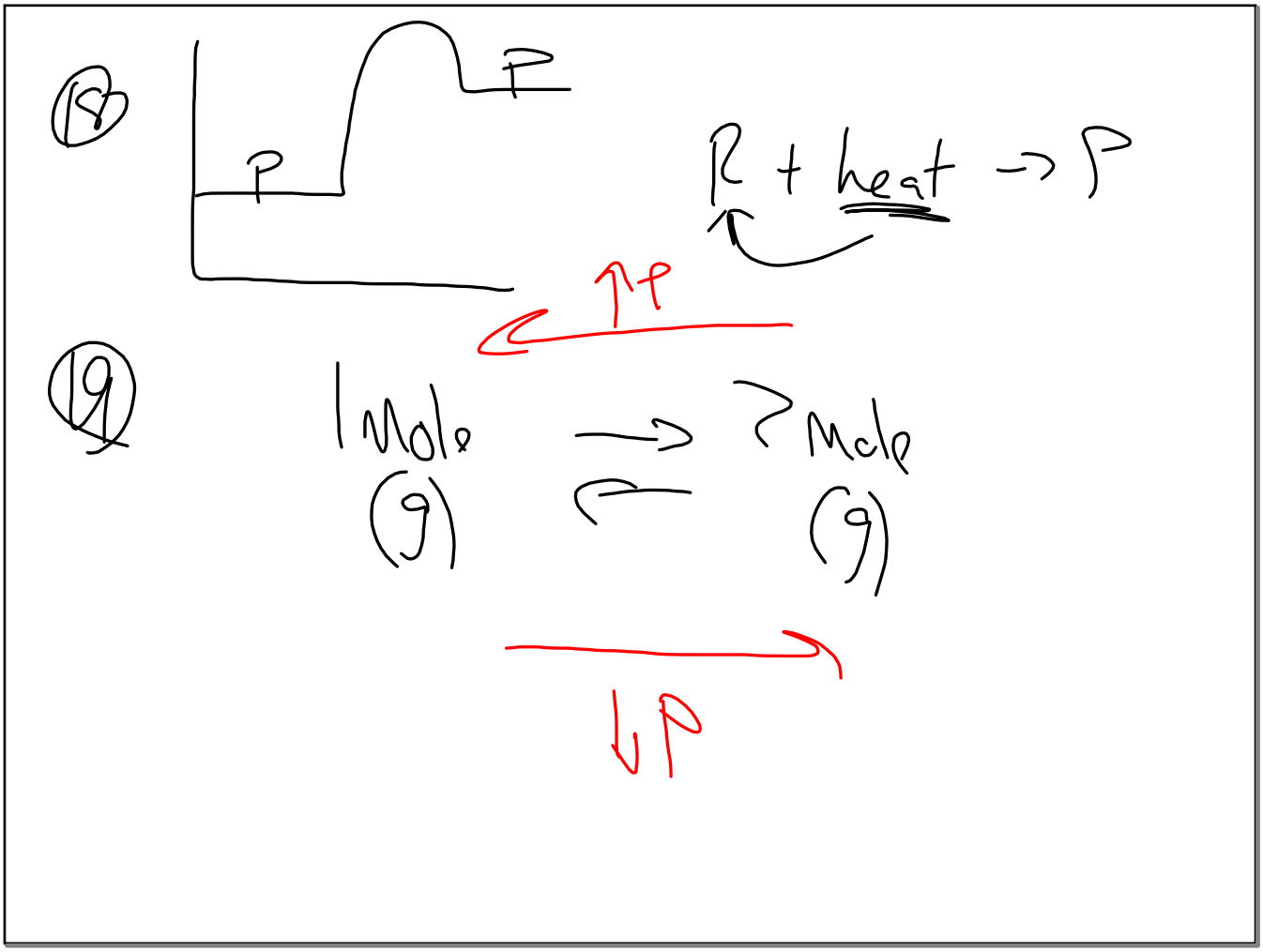
$$\frac{3.114}{1} = \frac{1}{1-x}$$

$$3.114 - 3.114x = 1$$

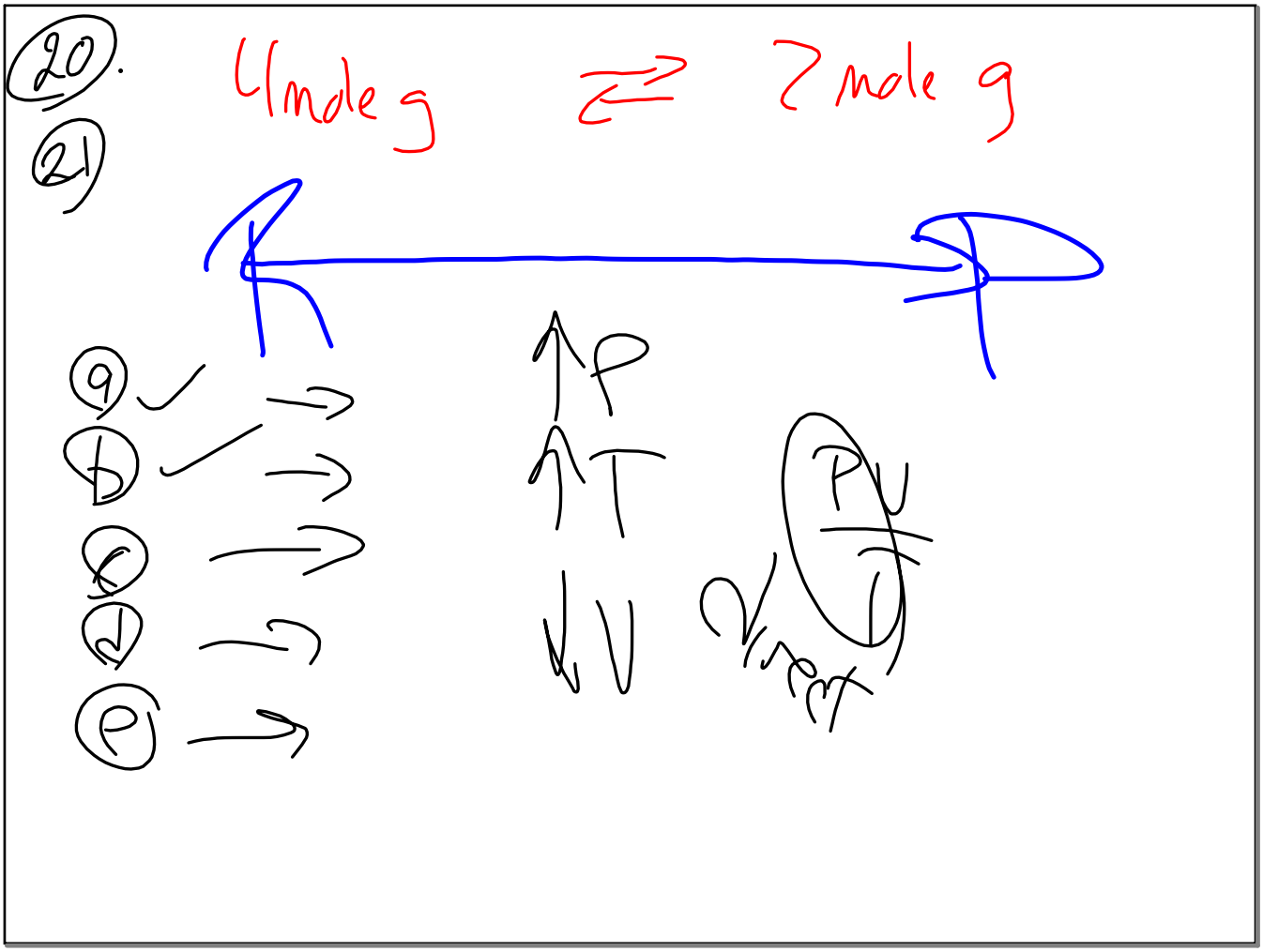
$$-3.114x = -2.114$$

$$x = 0.68$$

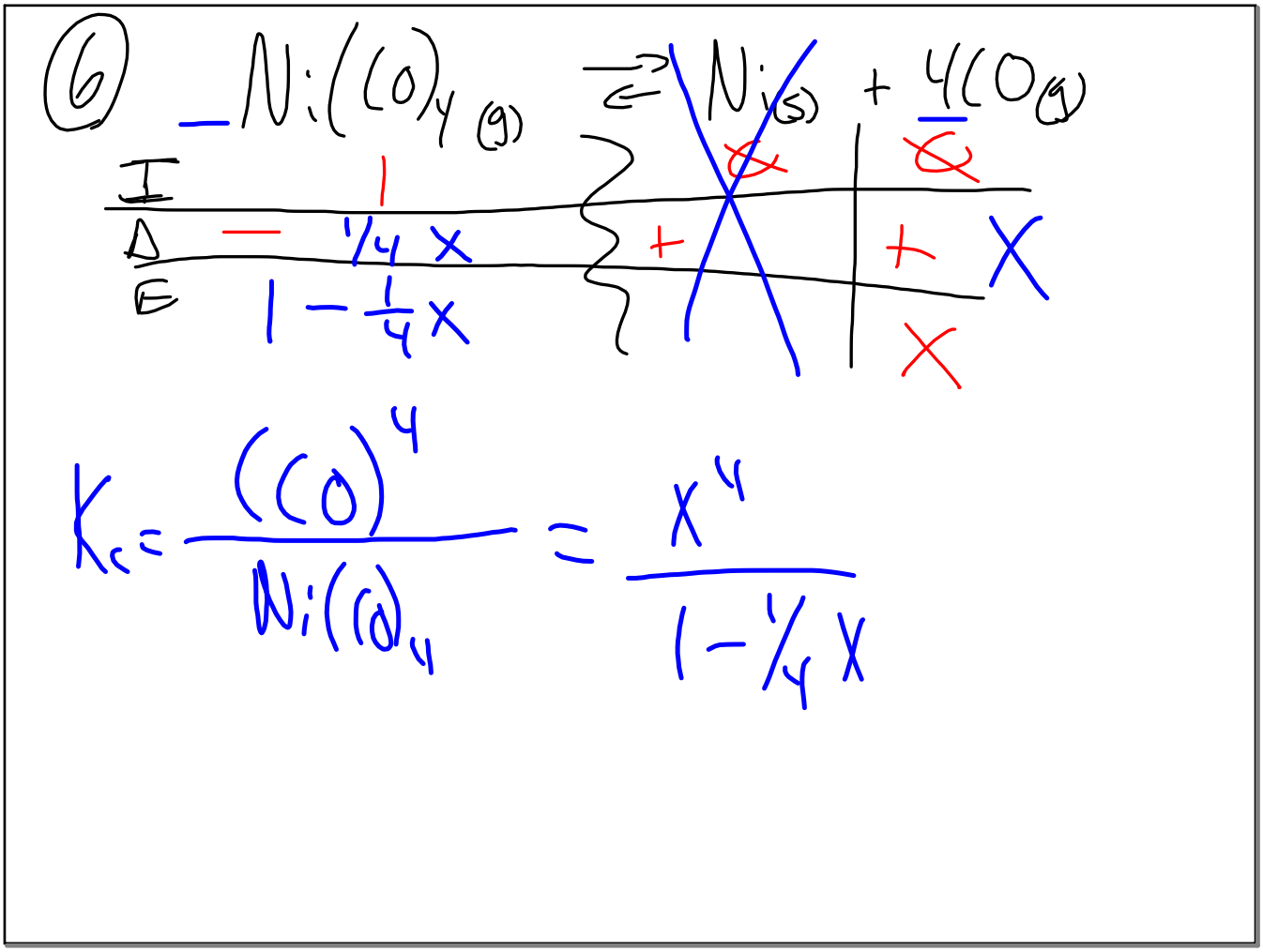
Feb 22-8:37 AM



Feb 22-8:45 AM



Feb 22-8:48 AM


6
$Ni(CO)_{4(g)} \rightleftharpoons Ni_{(s)} + 4CO_{(g)}$
I
Δ
E
1
$-\frac{1}{4}x$
$1-\frac{1}{4}x$
+
+
x
x
$K_c = \frac{(CO)^4}{Ni(CO)_4} = \frac{x^4}{1-\frac{1}{4}x}$

SpE 1 2015

① $\frac{-1}{6}\frac{\Delta[H_2O]}{\Delta t} = \frac{-1}{4}\frac{\Delta[NH_3]}{\Delta t} = \frac{\Delta[(CH_2)_6N_4]}{\Delta t} =$

$\frac{1}{6}\frac{\Delta[H_2O]}{\Delta t}$

② 2° $K = 0.47 \frac{1}{M \cdot sec}$

$[A_0] = 0.25M$

$[A_t] = 0.125M$

$t = ?$ sec

$$\frac{1}{[A_t]} = Kt + \frac{1}{[A_0]}$$

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

Feb 22-9:06 AM

③ 1^{o} $K = 1.2 \times 10^{-2} \frac{1}{sec}$ $A_0 = 2M$

$A_t = ?$

$t = 200 sec$

$\ln A_t = -Kt + \ln A_0$

$\ln A_t = (-1.2 \times 10^{-2})(200) + \ln 2$

$\ln A_t = -1.7068$

$A_t = 0.1814$

(6) NO Rate } H_2 Rate

(1→2) $2^{2} = 4$ } $2^{1} = 2$

$$\text{Rate} = k[NO]^2[H_2]$$