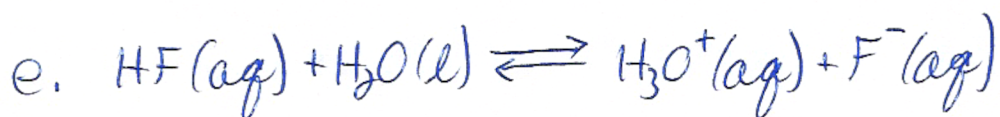
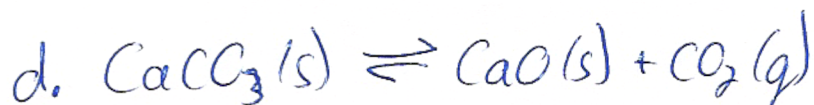
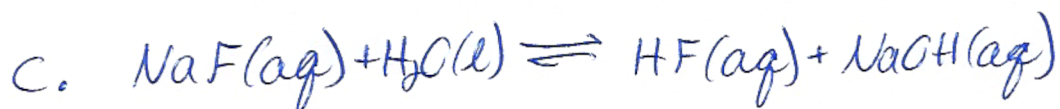
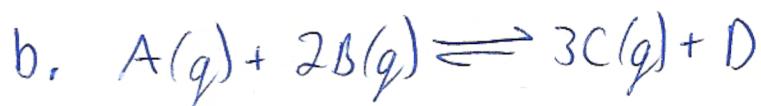
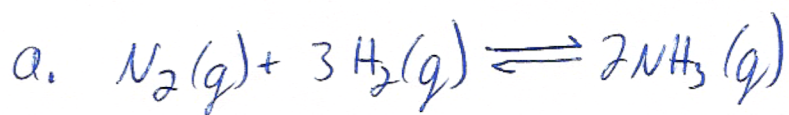


① Write K_c Expressions



What is K for $C \rightleftharpoons A + B$?



a. $K_c = 10^3$

b. $K_c = 10^{-3}$

(14-6)

① For $A \rightleftharpoons B + C$, find K_c if $[A] = 0.26$
 $[B] = 0.26$
 $[C] = 0.93$

② For $A + 2B \rightleftharpoons 2C + D$ find K_c if $[A] = 0.15$
 $[B] = 0.18$
 $[C] = 2.0 \times 10^{-4}$
 $[D] = 3.0 \times 10^{-6}$

③ $2A + 2B \rightleftharpoons C + 2D$ $K_c = \underline{\hspace{2cm}}$
I 0.20 0.30 0 0.10
C

--	--	--	--

E 0.10

--	--	--	--

 $K_c =$

④ $A + 2B \rightleftharpoons C + D$ $K_c = \underline{\hspace{2cm}}$
I 0.20 0.20 0 0
C $K_c =$
E 0.15



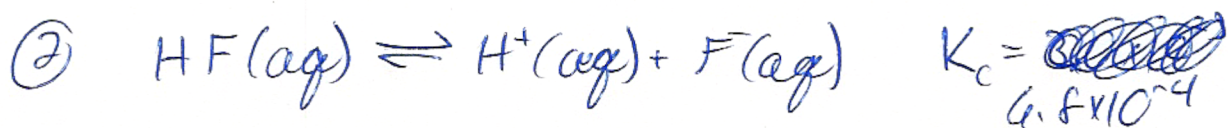
Suppose $[A]$, $[B]$, + $[C]$ all begin at $0.33 M$:

a. what is Q ?

b. Which direction will the reaction go to achieve equilibrium?

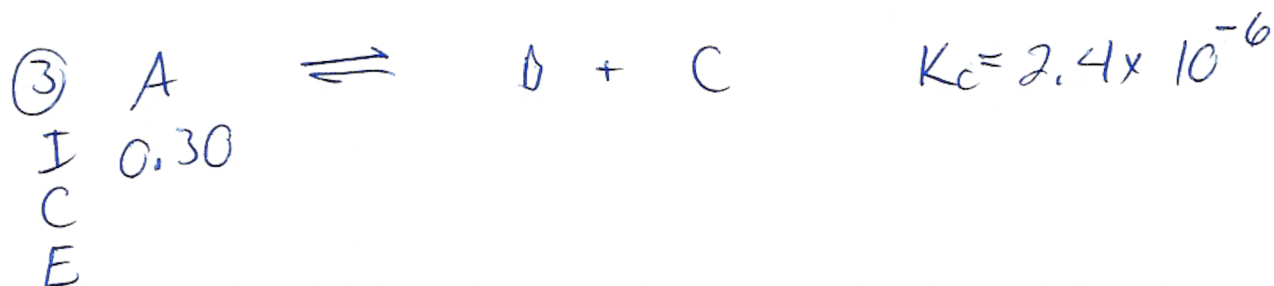
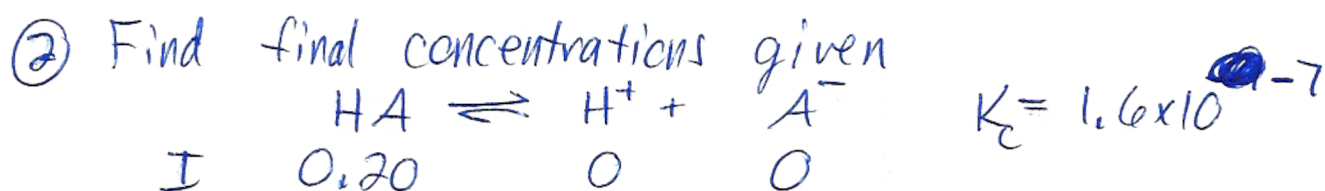
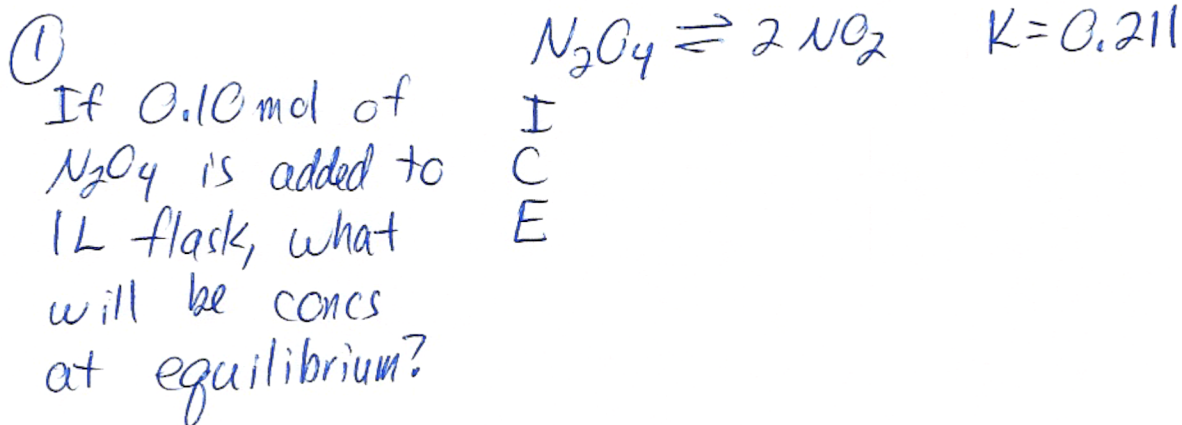
c. What will happen to the concentrations of:

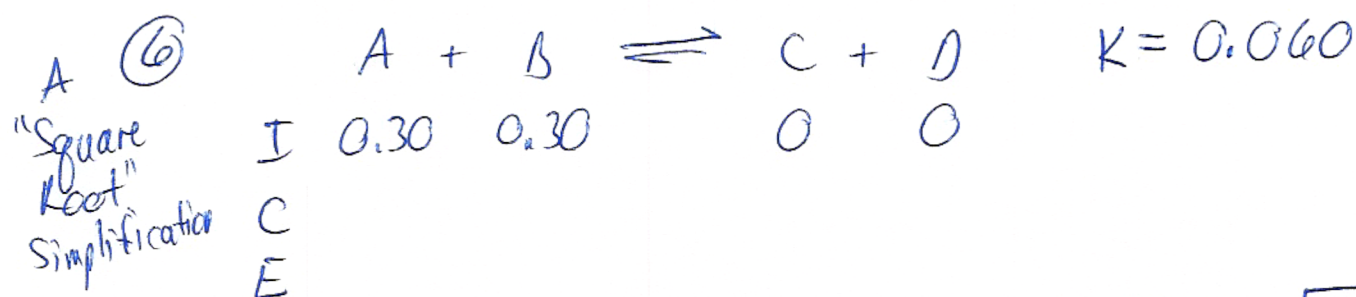
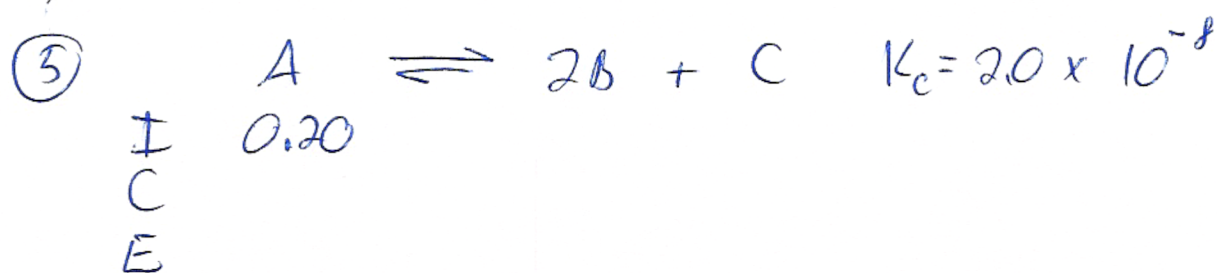
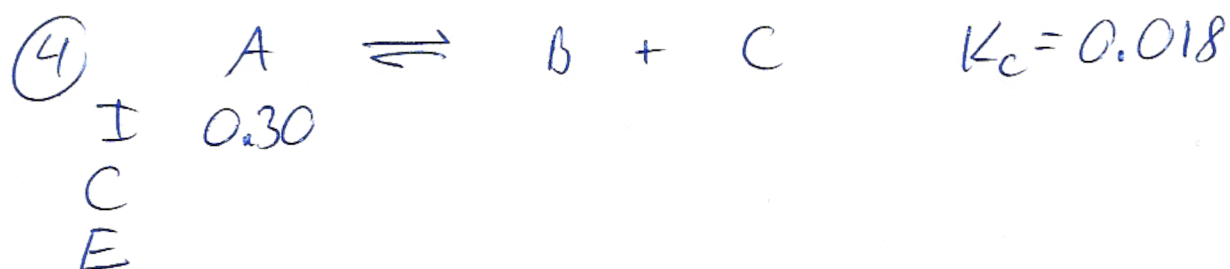
- $[A]$
- $[B]$
- $[C]$



a. Find $[H^+]$ if $[HF] = 0.10$ and $[F^-] = 0.10$

b. Find $[F^-]$ if $[HF] = 0.20$ and $[H^+] = 10^{-3}$





"Square
Root"
Simplification

$$K = 0.060 = \underline{\hspace{2cm}}$$

take square
root of everything

$$\sqrt{0.060} = \sqrt{\hspace{2cm}}$$



<u>Disruption</u>	<u>Immediate</u> <u>Impact on Q</u>	<u>Direction to</u> <u>Restore Eq</u>	<u>Response of</u>			
			[A]	[B]	[C]	[D]
Add A	$Q < K$	forward	↓	↓	↑	↑

Add B

Add C

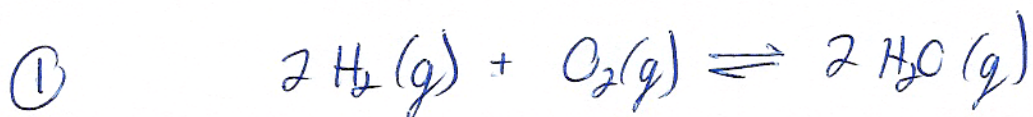
Add D

Remove A

Remove B

Remove C

Remove D



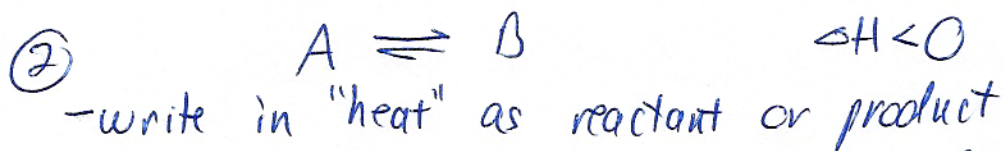
Volume Change

Direction to Restore Eq

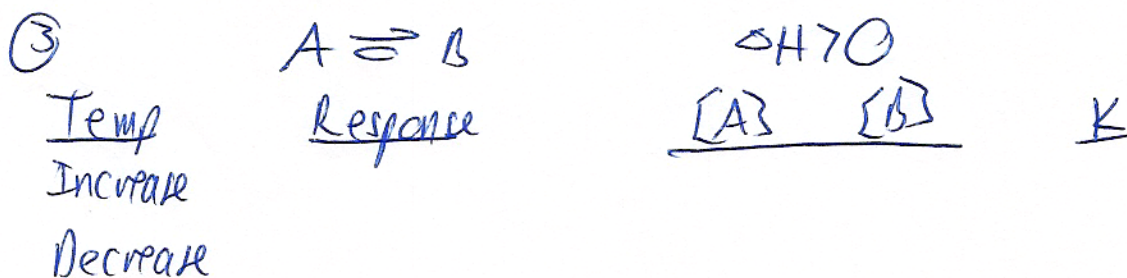
Response of
 $[\text{H}_2]$ $[\text{O}_2]$ $[\text{H}_2\text{O}]$

Increase

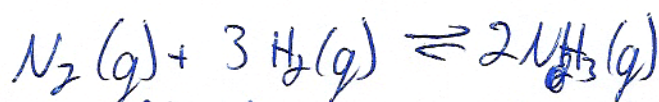
Decrease



Temp Change Direction to Restore Eq Response of
 A B K
 Increase
 Decrease



(14-17)



$\Delta H = -93$

Disruption

Direction to
Restore Eq

Response of
 $[\text{N}_2]$ $[\text{H}_2]$ $[\text{NH}_3]$ K

1. Raise temp
2. Increase volume
3. Add N_2
4. Remove NH_3
5. Lower temp
6. Add NH_3
7. Remove N_2
8. Reduce volume