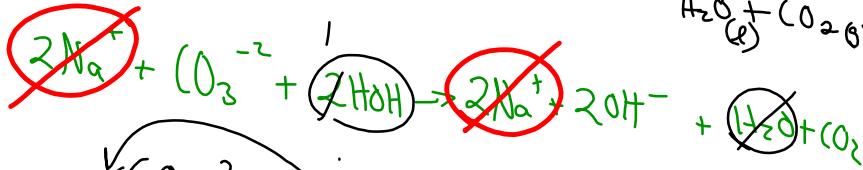
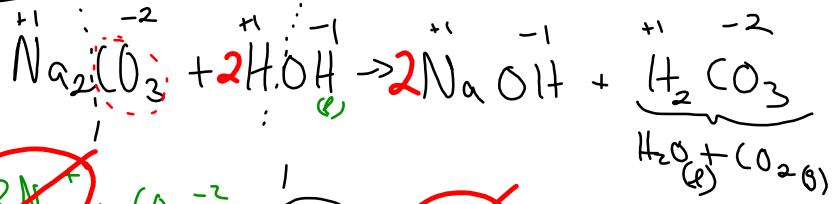


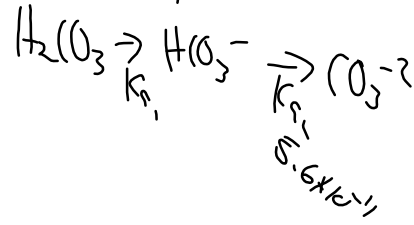
(16.83b) 0.08M Na₂CO₃



I	0.08				
D	-x				
E	0.08-x				

		HCO ₃ ⁻	OH ⁻
		x	x

$$K_b = \frac{(x)(x)}{0.08-x} = 1.79 \times 10^{-4}$$



Mar 22-8:04 AM

(17.16g) 0.15M NaFor, 0.2M HFor



	HFor	→	H ⁺	+	For ⁻
I	0.2		0		0 + 0.15
D	-x		+x		+x
E	0.2-x		x		0.15+x

(common ion from NaFor)

$$K_a = \frac{x(0.15+x)}{0.2-x} = 1.8 \times 10^{-4}$$

ignore +x -x

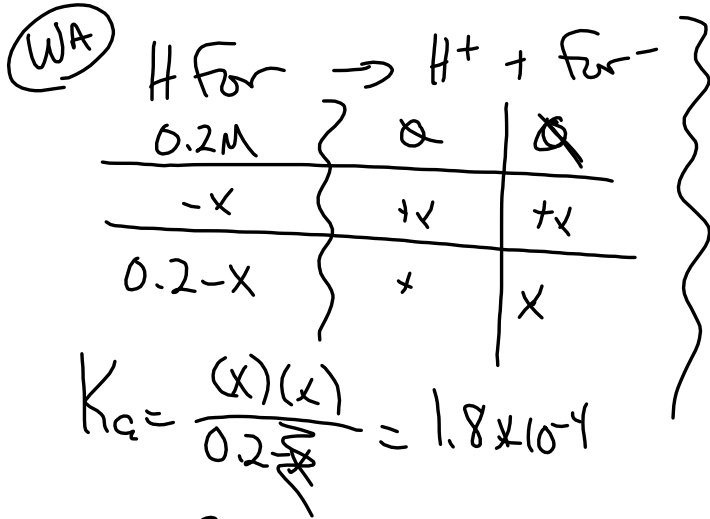
$$x = 2.4 \times 10^{-4}$$

pH 3.62

$$\% \text{ ionization} = \frac{2.4 \times 10^{-4}}{0.2} \times 100$$

ignore +x -x (0.12%) < 5%

Mar 22-8:17 AM



5% ionized test

$\frac{6 \times 10^{-3}}{0.2} \times 100$

3% ionized

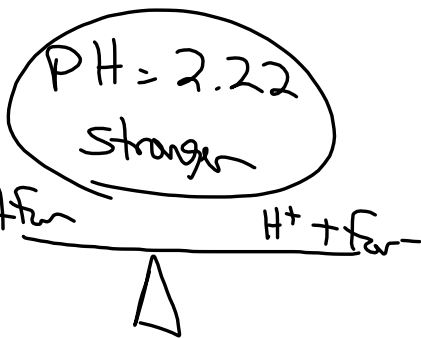
< 5% good!

$x^2 = 3.6 \times 10^{-5}$

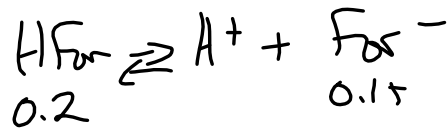
$x = 6 \times 10^{-3} = (\text{H}^+)$

PH = 2.22

Mar 22-8:32 AM

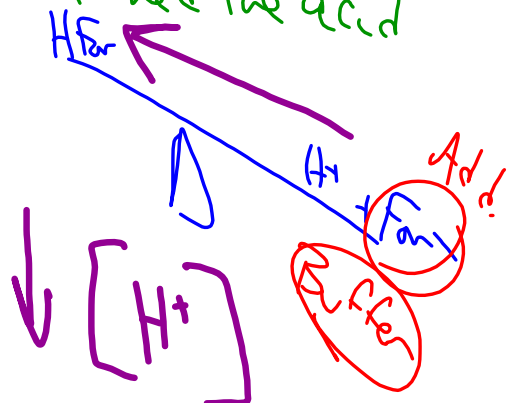


$\text{PH} = -\log(\text{H}^+)$



PH = 3.62

Adding the common ion
weakened the acid



Mar 22-8:35 AM

pH of a buffer WA WB Buffer common ion

Henderson Hasselbach EQN

$$\begin{aligned}
 & -\log[H^+] \quad -\log[K_a] \\
 \text{pH} &= \text{p}K_a + \log \frac{[\text{base}]}{[\text{acid}]} \\
 \textcircled{A} \quad \text{HF} &\rightarrow \text{H}^+ + \text{F}^- \\
 0.2 & \quad \quad \quad 0.15
 \end{aligned}$$

$$= -\log(1.8 \times 10^{-4}) + \log \frac{0.15}{0.2}$$

$$= 3.62$$

Mar 22-8:40 AM

HW 17/21

Add all common ions

NaF + KF → Mole Add
 + mix → reals M

Mar 22-8:44 AM