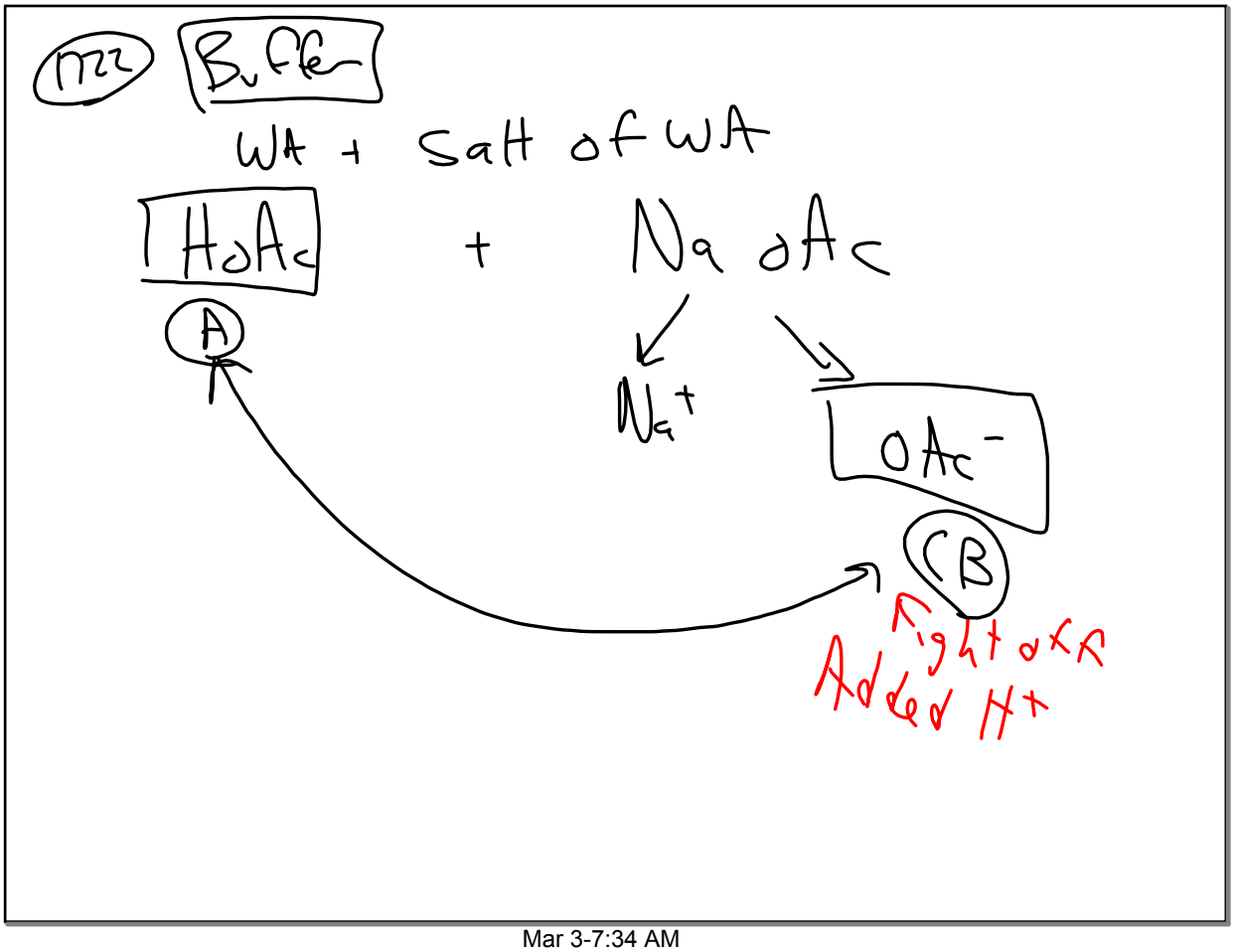


Mar 3-7:34 AM

Blood pH 7.35 ↔ 7.45

Alive + Well

Acidotic ← → Alkalotic

$CO_2 + H_2O \rightarrow H_2CO_3$

CO_2 buildup
Hold breath.
pH ↓

Seltzer
pH ↑ breath faster.

Mar 3-8:21 AM

Sodium Bicarbonate.

$NaHCO_3$ (100mEq)

$NaOH$ (B) → SB

H_2CO_3 (A) → WA → H_2O + CO_2

Counteract excess CO_2 NOT breathing

Mar 3-8:25 AM

1722 @ 0.105 $NaHCO_3$ P125 - Soluble in alkal. metals;

0.105 M $NaHCO_3$ (Salt) + 0.125 M Na_2CO_3 (Salt)

$NaHCO_3 \rightarrow Na^+ + HCO_3^-$ 0.105 M

$Na_2CO_3 \rightarrow 2Na^+ + CO_3^{-2}$ 0.125 M

$H_2CO_3 \xrightarrow{K_{a_1}} HCO_3^-$ * to K_{a_2} * CO_3^{-2}

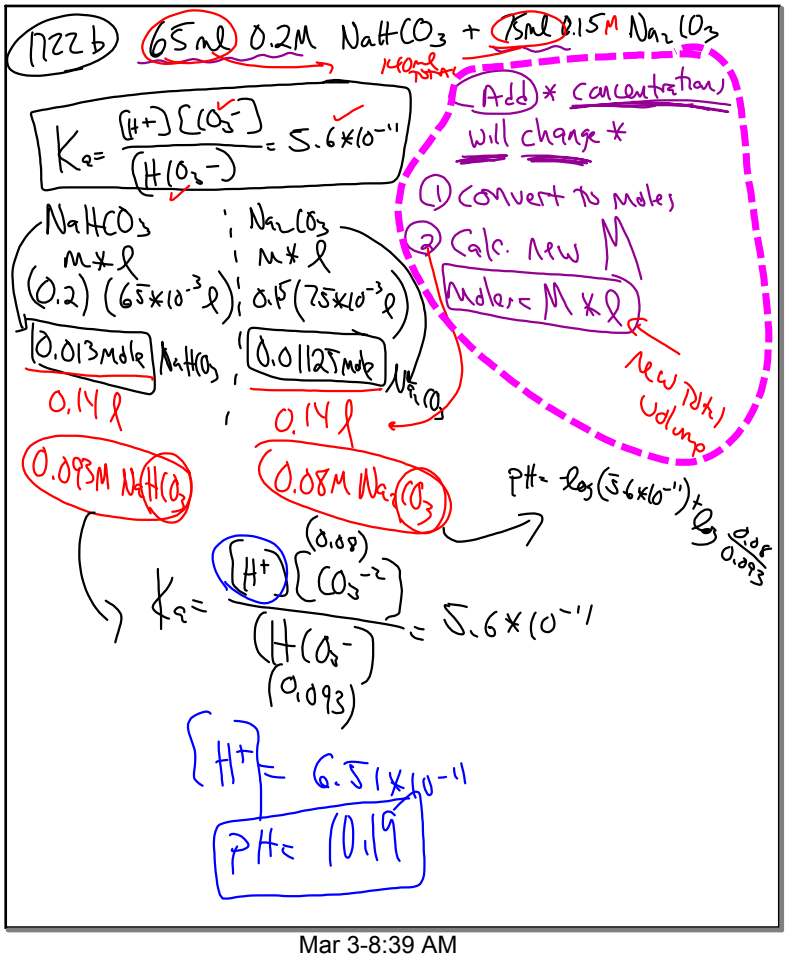
$HCO_3^- \rightarrow H^+ + CO_3^{-2}$

$K_{a_2} = \frac{[H^+][CO_3^{-2}]}{[HCO_3^-]} = \frac{(H^+)(0.125)}{0.105} = 5.6 \times 10^{-11}$

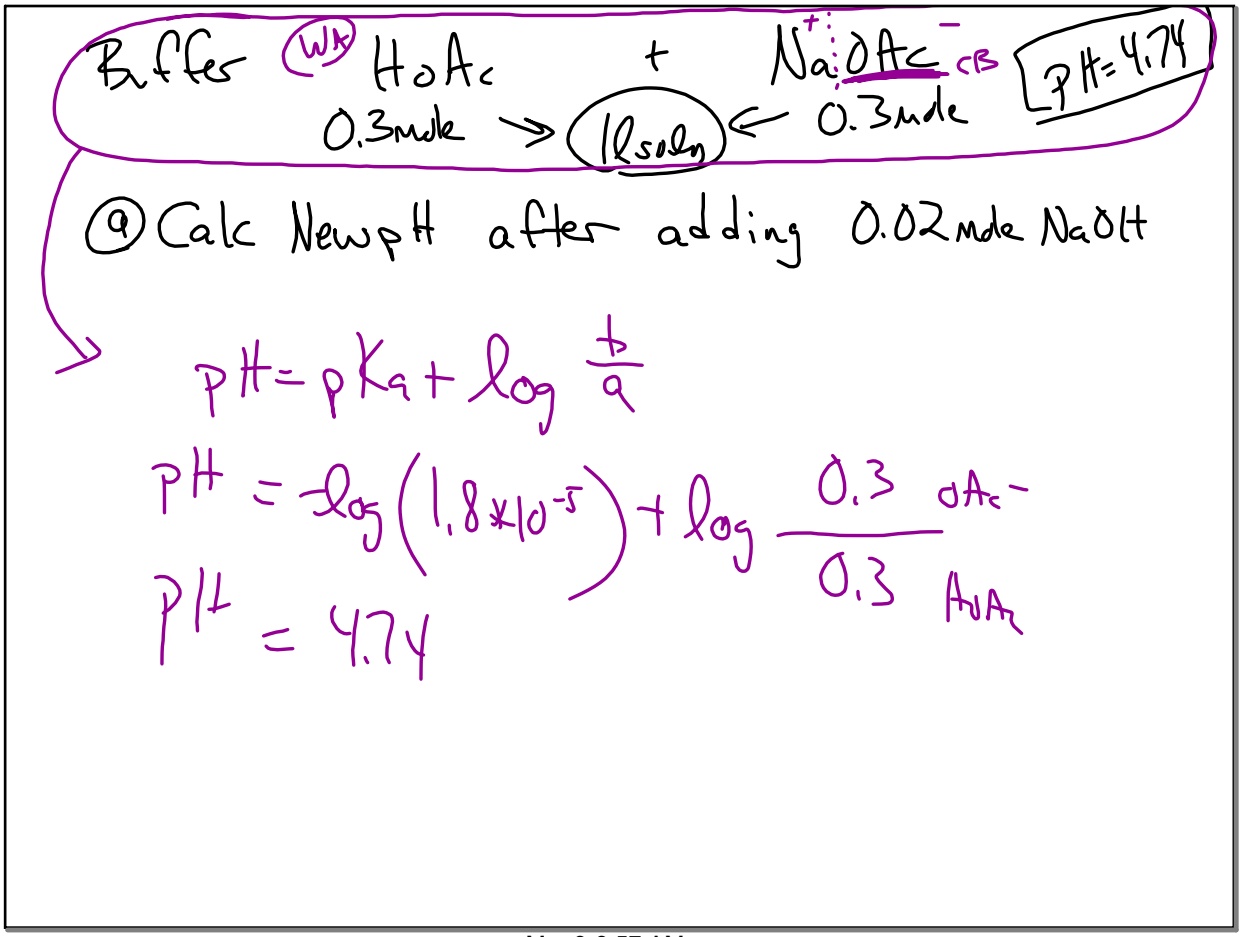
$(H^+) = 4.704 \times 10^{-11}$

$pH = -\log(H^+) = 10.33$

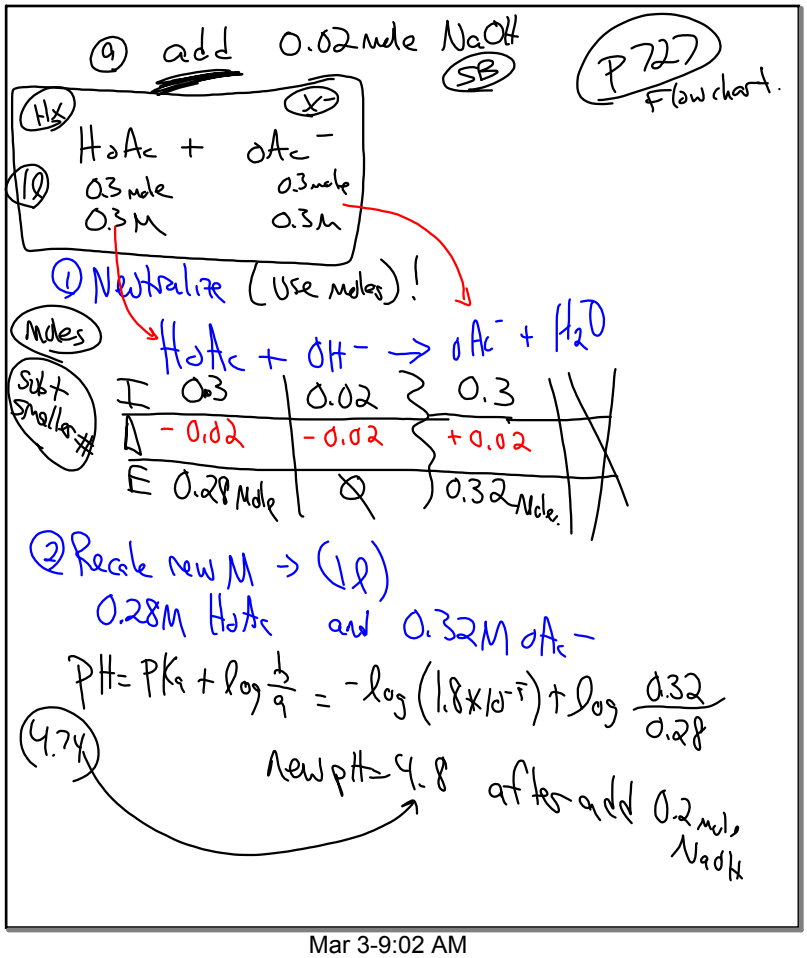
Mar 3-8:28 AM



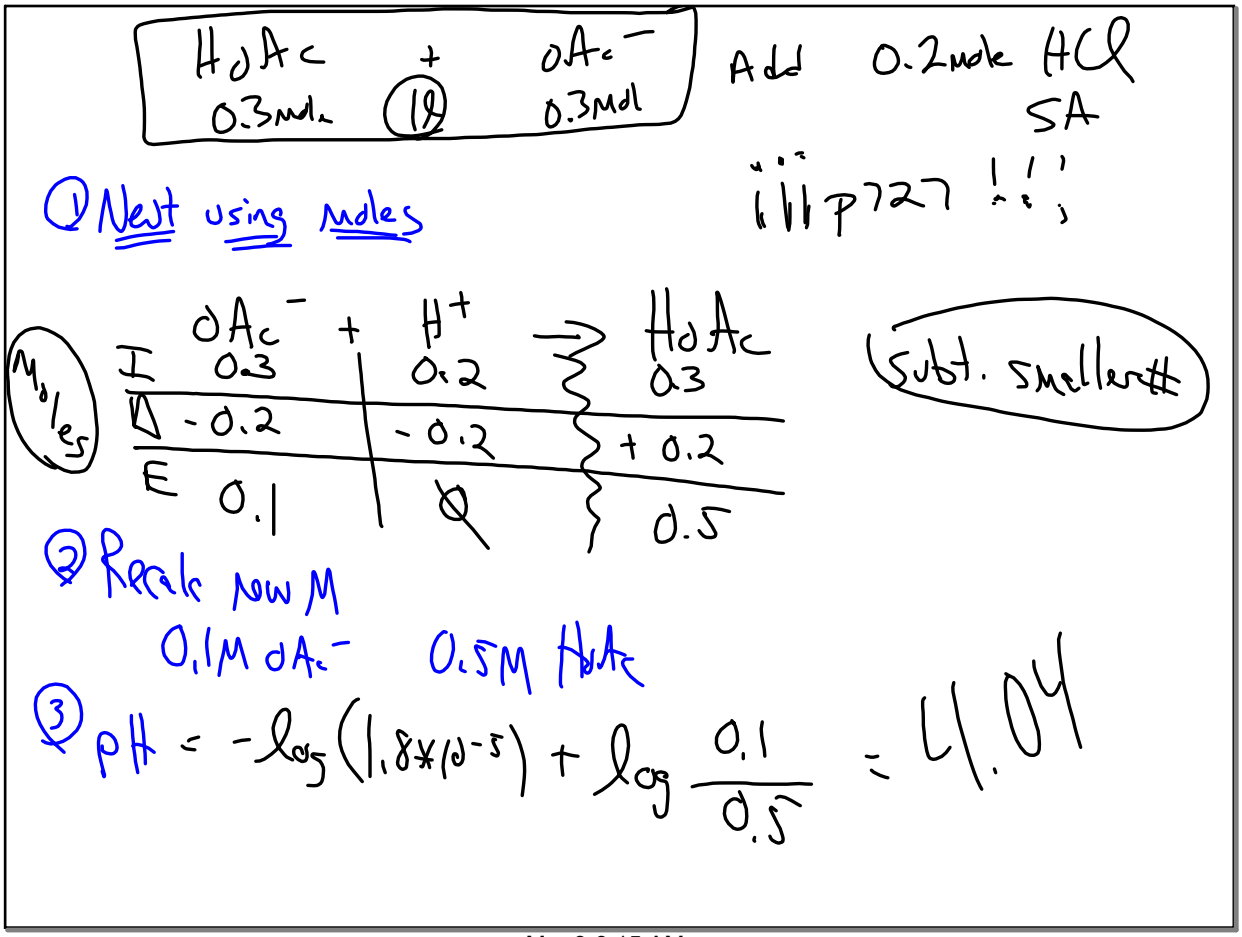
Mar 3-8:39 AM



Mar 3-8:57 AM



Mar 3-9:02 AM



Mar 3-9:15 AM

17.24

7g NH_3 (B) + 20g NH_4Cl (A) 2.5L

$K_b = 1.8 * 10^{-5}$

has more H^+

pH = ?

$pH = pK_a + \log \frac{[b]}{[a]}$

$NH_4Cl \rightarrow NH_4^+ + Cl^-$ (A)

$K_a * K_b = K_w$ $K_a = 5.56 * 10^{-10}$

$= -\log(5.56 * 10^{-10}) + \log \frac{0.165}{0.151}$

$\frac{7\text{g}NH_3}{2.5\text{L}} \left| \frac{1\text{mol}\ NH_3}{17\text{g}NH_3} \right. = 0.165\text{M}\ NH_3$

$\frac{20\text{g}\ NH_4Cl}{2.5\text{L}} \left| \frac{1\text{mol}\ NH_4Cl}{53\text{g}NH_4Cl} \right. = 0.151\text{M}$

pH = 9.29

Mar 3-9:23 AM

17 / 30

Mar 3-9:31 AM