(16.75) $C_2H_5NH_2$ 0.075M $[OH^-]$ and pH ?

$$K_b = 6.4 \times 10^{-4}$$

$$
\begin{array}{c}
EA \\
C_2H_5NH_2
\end{array}
+
\begin{array}{c}
HOH \\
HOH
\end{array}
\Rightarrow
\begin{array}{c}
H\,EA^+ \\
C_2H_5NH_3^+
\end{array}
+
\begin{array}{c}
OH^- \\
OH^-
\end{array}
$$

I	0.075	0̷	0̷
D	$-x$	$+x$	$+x$
E	$0.075-x$	x	x

$$K_b = \frac{[C_2H_5NH_3^+][OH^-]}{[C_2H_5NH_2]}$$

$$\frac{(x)(x)}{0.075-x} = 6.4 \times 10^{-4}$$

(OH^-) $x^2 + 6.4 \times 10^{-4}x - 4.8 \times 10^{-5} = 0$

(OH^-) $x = 0.0066 = 6.6 \times 10^{-3}$ M
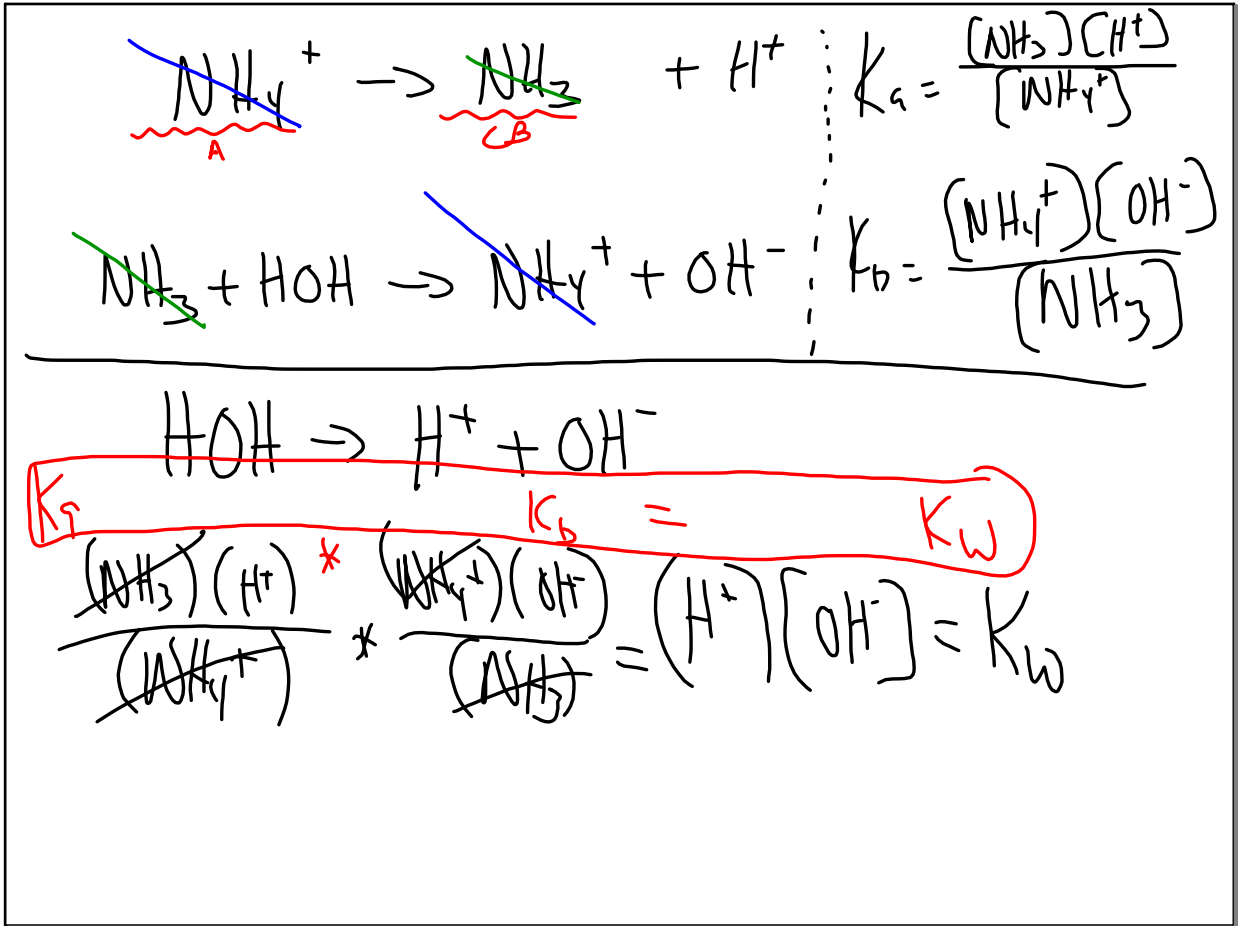
$$POH = -\log(OH) = 2.16$$

$$PH = 14 - pOH : 11.819$$

(16.77) $C_{10}H_{15}ON + HOH_{(l)} \Rightarrow C_{10}H_{15}ONH^+ + OH^-$

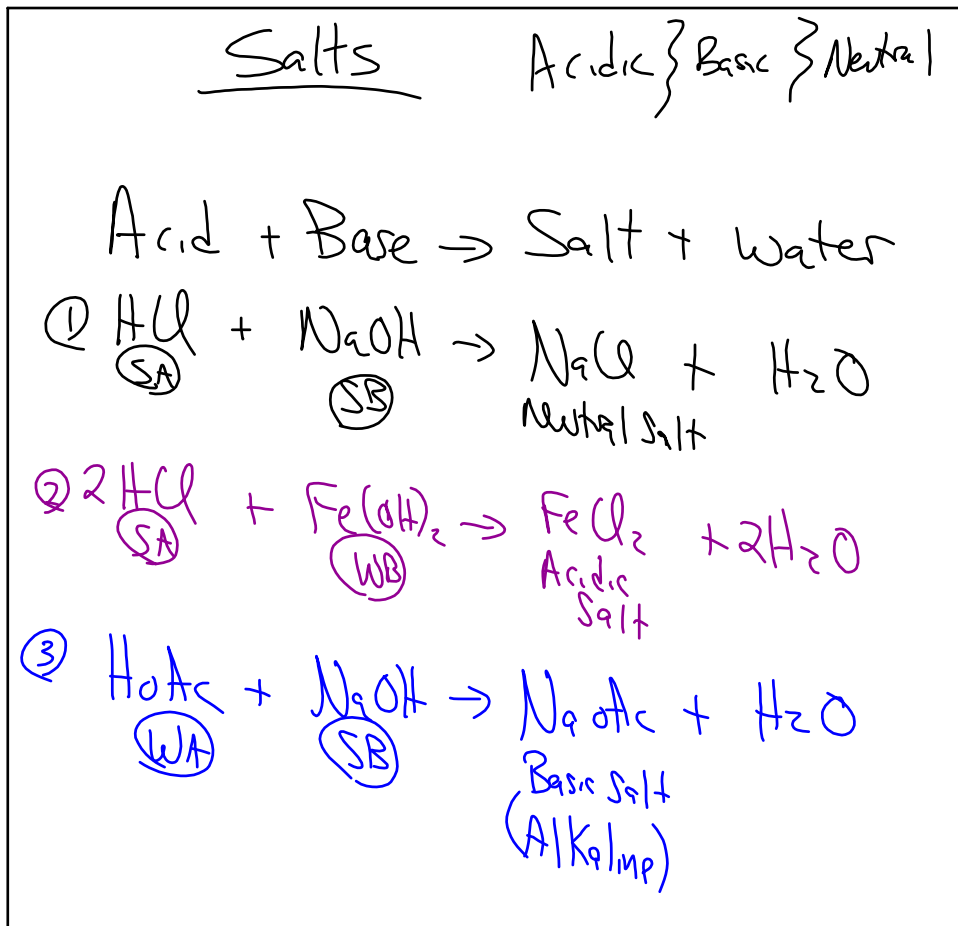|			
I	0.035	0̷	0̷
D	$0.035 - 2.14 \times 10^{-3}$		
E	3.29×10^{-2}	2.14×10^{-3}	2.14×10^{-3}

$$PH = 11.33$$

$$POH = 2.67$$

$$[OH^-] = 2.14 \times 10^{-3}$$

$$K_b = \frac{(2.14 \times 10^{-3})^2}{3.29 \times 10^{-2}} = 1.4 \times 10^{-4}$$

$$NH_4^+ \rightarrow NH_3 + H^+ \quad \vdots \quad K_a = \frac{(NH_3)(H^+)}{(NH_4^+)}$$

A / CB

$$NH_3 + HOH \rightarrow NH_4^+ + OH^- \quad \vdots \quad K_b = \frac{(NH_4^+)(OH^-)}{(NH_3)}$$

$$HOH \rightarrow H^+ + OH^-$$

$$K_a \qquad K_b = \qquad K_W$$

$$\frac{(NH_3)(H^+)}{(NH_4^+)} * \frac{(NH_4^+)(OH^-)}{(NH_3)} = (H^+)[OH^-] = K_W$$

Feb 27-8:27 AM

Salts   Acidic } Basic } Neutral

$$Acid + Base \Rightarrow Salt + Water$$

① HCl + $NaOH \rightarrow NaCl + H_2O$
   (SA)   (SB)
                        Neutral Salt

② $2HCl$ + $Fe(OH)_2 \Rightarrow FeCl_2 + 2H_2O$
   (SA)   (WB)   Acidic
                          Salt

③ $HOAc$ + $NaOH \rightarrow NaOAc + H_2O$
   (WA)   (SB)   Basic Salt
                         (Alkaline)

Feb 27-8:30 AM

Hydrolyze a salt to see if A/B/N

TOOF PASTE → (NaF)

NaF + HOH ⇒ HF + NaOH

(WA) (SB)

Basic Salt.

(pH > 7)

Feb 27-8:34 AM

Find pH of 1M NaF

complete: ~~Na~~F + HOH ⇒ ~~Na~~OH + HF

Net ionic eqn: F^- + HOH ⇒ (OH$^-$) + HF

	F^-	HOH	OH$^-$	HF
I	1		0	0
Δ	$-x$		$+x$	$+x$
E	$1-x$		x	x

$$K_b = \frac{(OH^-)(HF)}{F^-} =$$

$$\boxed{\frac{(x)(x)}{1} = \frac{1.4 \times 10^{-11}}{1}}$$

$K_a \, HF = 6.8 \times 10^{-4}$

$K_a \times K_b = K_w \; 1 \times 10^{-14}$

$K_b =$

$x = 3.83 \times 10^{-6} = (OH^-)$

$pOH = 5.42$

$\boxed{pH = 8.58}$

Feb 27-8:36 AM

PS 16-1 / even

Feb 27-8:44 AM