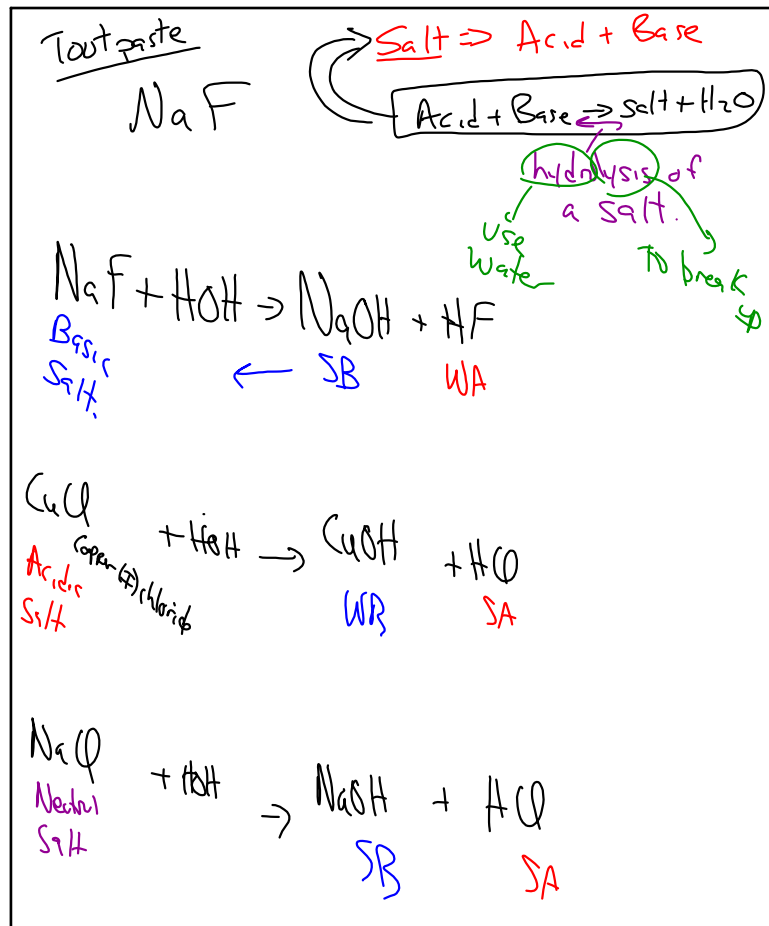


Feb 28-7:28 AM



Feb 28-7:46 AM

Find pH of 0.5 M NaF
 SB + NA ⇒ Basic salt pH > 7

$\text{NaF} + \text{H}_2\text{O} \rightleftharpoons \text{NaOH} + \text{HF}$

$\text{NaF} \rightarrow \text{Na}^+ + \text{F}^-$
 0.5 0.5 0.5
 Break up 100%

Base $\text{F}^- + \text{H}_2\text{O} \rightleftharpoons \text{OH}^- + \text{HF}$ (Net ionic eq)

I	0.5 M	0	0
Δ	-x	+x	+x
E	0.5-x	x	x

$K_b = \frac{[\text{OH}^-][\text{HF}]}{[\text{F}^-]} = 1.47 \times 10^{-11}$

$K_a \text{ for HF} = 6.8 \times 10^{-4}$
 $K_a \times K_b = K_w$
 $K_b = 1.47 \times 10^{-11}$

$\frac{(x)(x)}{0.5-x} = 1.47 \times 10^{-11}$

$x = 2.71 \times 10^{-6} = [\text{OH}^-]$

$\text{pOH} = 5.57$
 $\text{pH} = 8.43$

Feb 28-7:53 AM

H^+ acceptor (base) B → CA H_3O^+

H_2O (A) H^+ donor (acid) → CB OH^-

(e⁻ acceptor) (e⁻ donor)

Feb 28-8:20 AM

(11) $\text{HA} \rightarrow \text{H}^+ + \text{A}^-$

I	0.025		
D	-x	+x	+x
E	0.025-x	x	x part

$$K_a = \frac{(x)(x)}{0.025-x} = 1.4 \times 10^{-3}$$

Large K_a or $K_b \rightarrow \text{SA/SB}$
 Small $\rightarrow \text{WA/WB}$

Feb 28-8:24 AM

(18) $\text{HClO} \rightarrow \text{H}^+ + \text{ClO}^-$

I	0.015		
D	-x	+x	+x
E	0.015-x	x	x

$$K_a = \frac{(x)(x)}{0.015-x} = 3 \times 10^{-8}$$

Part $x = 2.12 \times 10^{-5}$

Whole 0.015 $\times 100 = 0.14\%$

Feb 28-8:28 AM

② $[OH^-]$

Ⓐ $pH = 3 \therefore pOH = 11 \quad [OH^-] = 1 \times 10^{-11}$

Ⓑ $1 \times 10^{-4} M HNO_3$
 $SA = [H^+]$ $[H^+][OH^-] = 1 \times 10^{-14}$ $[OH^-] = 1 \times 10^{-10}$

Ⓒ $pOH = 12 \quad [OH^-] = 1 \times 10^{-12}$

Ⓓ $W_{99}(H_2O) \quad pH = 7 \therefore pOH = 7 \quad [OH^-] = 1 \times 10^{-7}$

Ⓔ $1 \times 10^{-9} M HCl$
 SA $[OH^-] = 1 \times 10^{-5}$

Feb 28-8:31 AM

Calc $[OH^-]$ and pH of 0.1M NaCN $K_a = 4.9 \times 10^{-10}$

~~$NaCN + H_2O \rightleftharpoons NaOH + HCN$~~

I	0.1	}	}	}	}
D	-x	+	+	+	+
E	0.1-x	x	x	x	x

$K_b = \frac{(x)(x)}{0.1} = 2.04 \times 10^{-5}$

$x = 1.4 \times 10^{-3} = [OH^-]$

$pOH = 2.85$

$pH = 11.15$

Feb 28-8:40 AM

(HW) 16.89 and

Find pH and $[OH^-]$ for
0.08M Na_2CO_3



Feb 28-8:45 AM