(38.b) $\dfrac{[OH^-]}{(H^+)} = 0.014 \qquad = 1.4 \times 10^{-2}$

$(H)(OH) = 1 \times 10^{-14}$

$[H^+] \quad 7.14 \times 10^{-13}$

$PH = -\log(H^+) = 12.146 \quad BASE$

Feb 23-7:39 AM

(58.c) $\quad PH = 6.6 \quad \boxed{POH = 7.4} \quad Find \; [H^+] \; and \; [OH^-]$

$PH = -\log[H^+] \qquad [H^+][OH^-] = 1 \times 10^{-14}$

$-6.6 = \log[H^+]$

$\boxed{[H^+] = 2.5 \times 10^{-7}} \qquad 3.98 \times 10^{-8}$

$POH = -\log[OH^-] \qquad -7.4 = \log[OH^-]$

$PH + POH = 14$

**AT 25°C**

Feb 23-7:50 AM

# STRONG ACIDS

## Dissociates ~ 100%

| | $HCl$ | $\longrightarrow$ | $H^+$ | $+$ | $Cl^-$ |
|---|---|---|---|---|---|
| I | 6M ALL | | $\emptyset$ | | $\emptyset$ |
| D | $-6$ | | $+6$ | | $+6$ |
| E | $\sim \emptyset$ | | $6$ | | $6$ |

$$pH = -\log(H^+)$$
$$pH = -\log 6$$
$$pH = -0.78$$
$$pOH = 14.78$$

$$K = \frac{(H^+)(Cl^-)}{[HCl]} = \sim \infty$$

(SA)

$K = HUGE!$
$P.S.T.!$

Feb 23-7:56 AM

# Weak Acid

## DON'T dissociate much!

OK ... "self"... How much do They dissociate.

USE $K_a$ = degree of dissociation

P 1115

Appendix No "D"

Feb 23-8:02 AM

$HC_2H_3O_2$    or    $CH_3COOH$

(WA)

HoAc

$\boxed{OAc^-}$
Acetate ion

$\boxed{K_c = \text{SMALL}}$

$\rightarrow K_a = 1.8 \times 10^{-5}$

$0.000018$

each $H^+$ → new $K_a$ value.

## ONE PROTON
## ¡ Juan Proton !

Feb 23-8:06 AM

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$\boxed{6M \; HoAc}$    pH = ?    (WA/WB) RICE!

$$HoAc \; \rightleftharpoons \; H^+ \; + \; OAc^-$$

| | HoAc | | $H^+$ | | $OAc^-$ |
|---|---|---|---|---|---|
| I | $6 \times 10^0$ | | $0$ | | $0$ |
| D | $-X$ | | $+X$ | | $+X$ |
| E | $6-X$ | $1.038 \times 10^{-2}$ | $X$ | | $X$ |

$K_a = \dfrac{[H^+][OAc^-]}{[HoAc]} = \dfrac{1.8 \times 10^{-5}}{1} = \dfrac{X^2}{6-X}$

$X = 0.0189$
$\boxed{pH = 1.98}$

$X^2 + 1.8 \times 10^{-5}X - 1.08 \times 10^{-4} = 0$

$\boxed{X = 1.038 \times 10^{-2}} = [H^+]$

$\boxed{pH = 1.98}$

% ionization

$\dfrac{Part}{Whole} \times 100$

$\dfrac{1.038 \times 10^{-2}}{6} \times 100$

$\boxed{0.173\% \; ionized}$

If $< 5\%$ ionized $\boxed{IGNORE}$ "$-X$"

Feb 23-8:11 AM

$H$ FOR $\rightarrow$ $H^+$ + FOR$^-$

($10^{-1}$)

|     |          |      |      |
|-----|----------|------|------|
| I   | 0.2M     | ⊖    | ⊖    |
| D   | $-x$     | $+x$ | $+x$ |
| E   | $0.2-x$  | $x$  | $x$  |

(PH = ?)

$$K_a = \frac{x^2}{0.2-x} = 1.8 \times 10^{-4}$$

($10^{-4}$)

$$x = (H^+) = 3.6 \times 10^{-x} = x^2$$

$$PH = 2.22$$

Feb 23-8:23 AM

16 / 60 + 64

Feb 23-8:29 AM