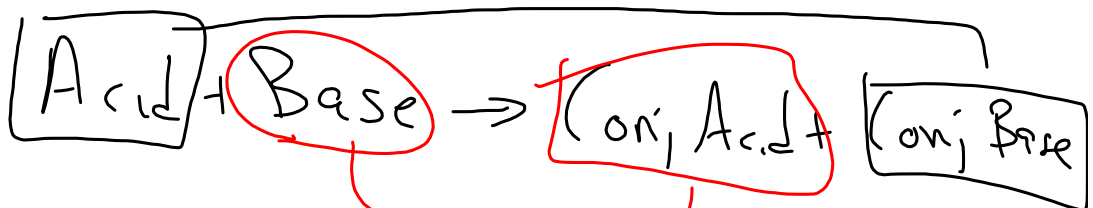


Feb 29-7:41 AM

Acid/Base pair



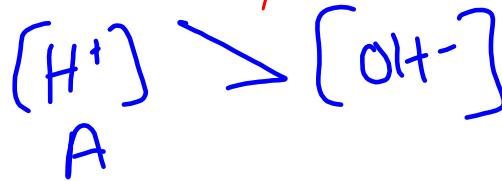
Differ only by 1  $H^+$   
 Juan Proton

Feb 29-7:54 AM

$$K_w = [H^+][OH^-] = 1 \times 10^{-14} \text{ AT } 25^\circ\text{C}$$

Ⓐ  $[H^+] = 8.0045 \text{ M}$

$[OH^-] = 2.2 \times 10^{-12}$



Ⓑ  $[H^+] = 1.5 \times 10^{-9}$

$[OH^-] = 6.67 \times 10^{-6}$

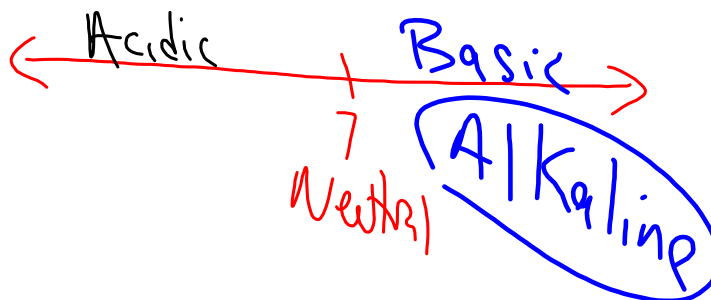


Ⓒ  $[H^+] = 10$     $[OH^-] = 1$   
A

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pH ← Exponential relationship  
Power of the hydrogen ion  $(10^x)$

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



Feb 29-8:03 AM

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

$$-\log([H^+][OH^-]) = -\log 10^{-14}$$

$$-\log(H^+) + -\log(OH^-) = 14$$

$$pH + pOH = 14$$

$$pOH = -\log(OH^-)$$

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

AT 25°C

Feb 29-8:09 AM

Q  $pH = 5$

$$pOH = 9$$

$$[OH^-] = 1 \times 10^{-9}$$

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

$$5 = -\log[H^+]$$

Move - sign 1st  
Before you "anti-log"

$$-5 = \log[H^+]$$

$$1 \times 10^{-5} = [H^+]$$

Feb 29-8:13 AM

$\text{pH} = 2.39$

$\text{pOH} + \text{pH} = 14$

$\text{pOH} = 11.61$

~~pOH, H<sup>+</sup>, OH<sup>-</sup>~~ Find

$\text{H}^+$   
 $\text{pH} = -\log(\text{H}^+)$   
 $-2.39 = \log(\text{H}^+)$

$[\text{H}^+] = 4.07 \times 10^{-3} \text{ M}$

Find  $[\text{OH}^-]$   
 $[\text{H}^+][\text{OH}^-] = 1 \times 10^{-14}$   
OR  
 $\text{pOH} = -\log[\text{OH}^-]$   
 $2.46 \times 10^{-12} = [\text{OH}^-]$

Feb 29-8:16 AM



Find  $[\text{OH}^-]$

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

$1.67 \times 10^{-15}$

0.00000000000000167 M

Feb 29-8:21 AM

$$16 / 40 + 41$$

Feb 29-8:25 AM