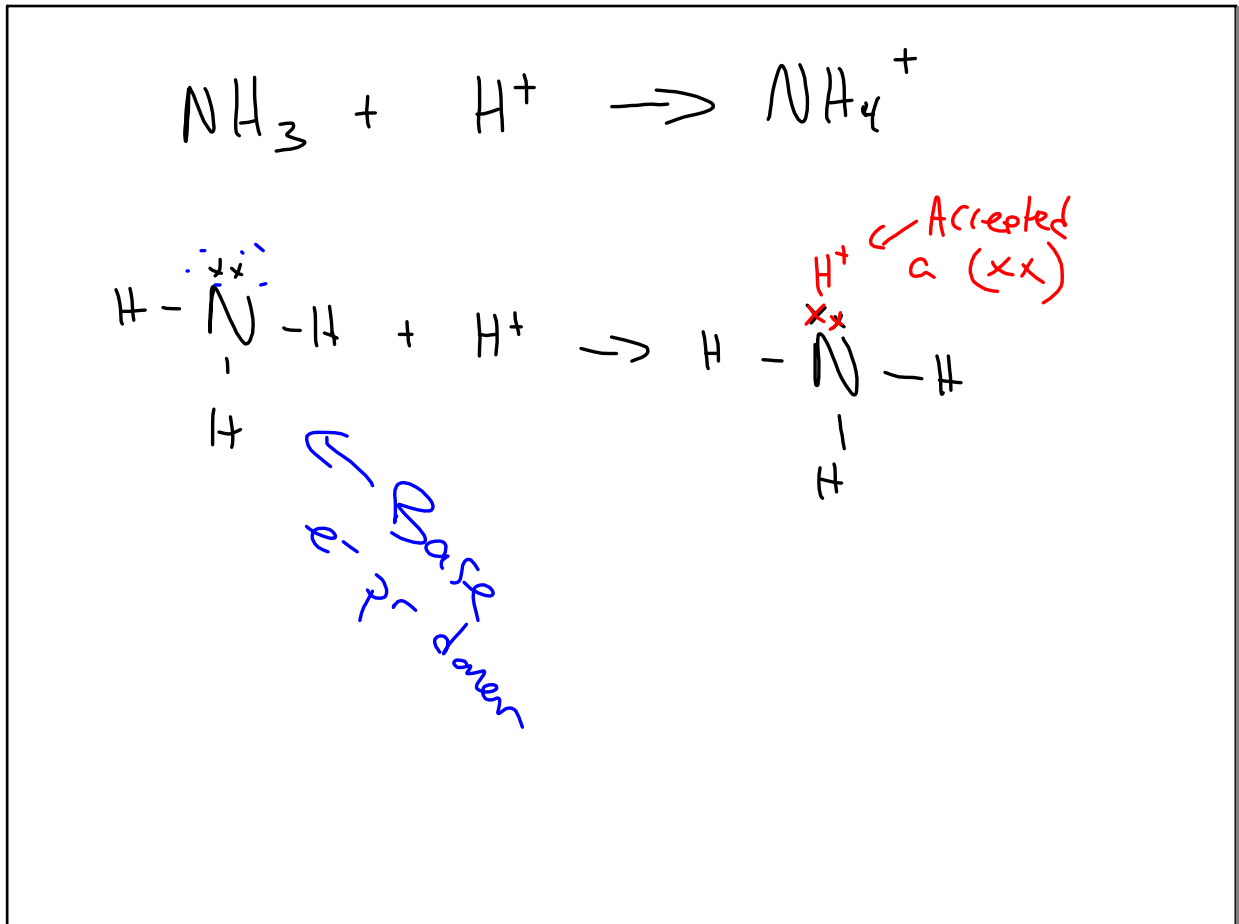


Chap 16 A/B/S

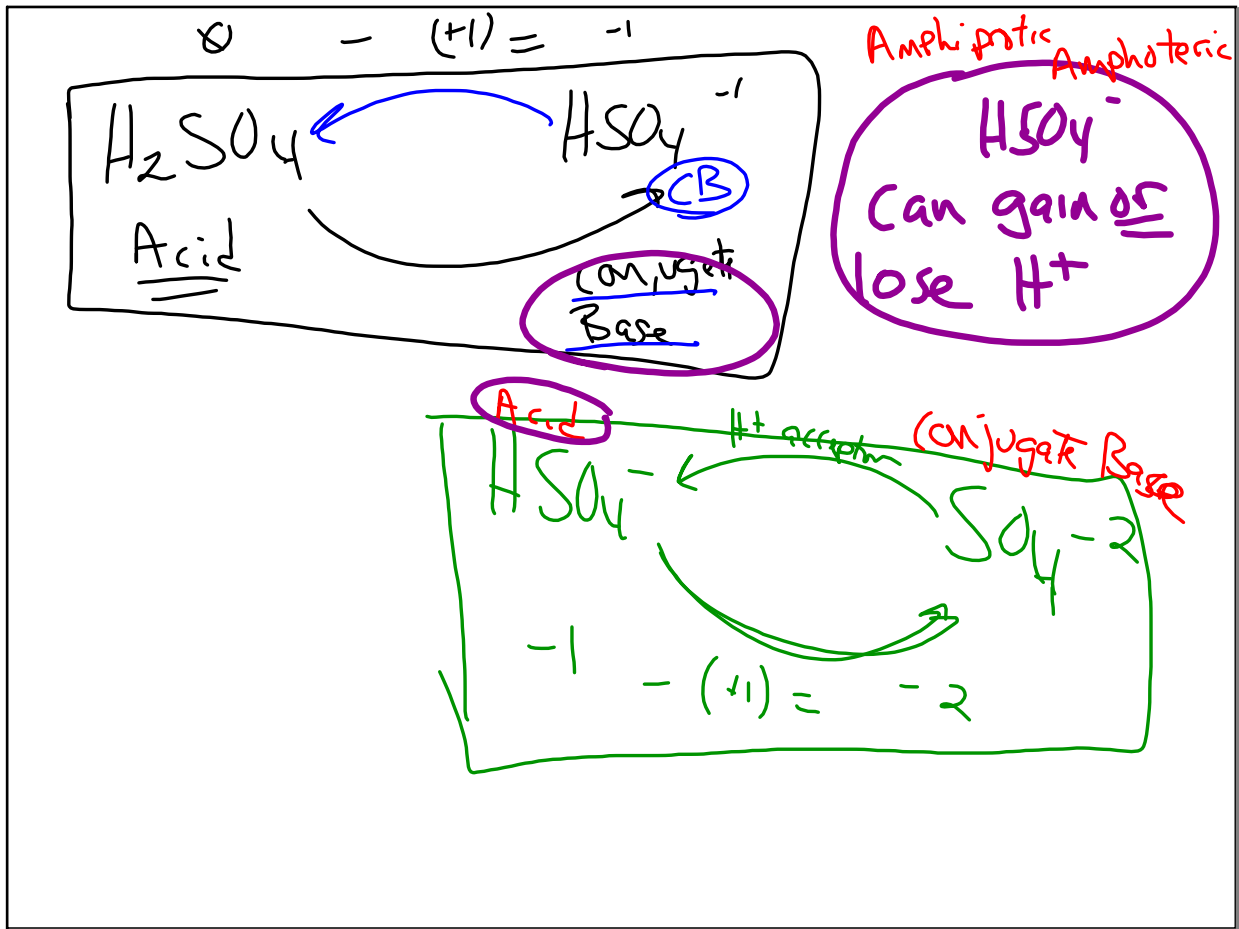
<p style="text-align: center;"><u>Acids</u></p> <p style="text-align: center;">pH < 7</p> <p style="text-align: center;">Arrhenius Definition H^+ (proton) only \oplus ion</p> <p style="text-align: center;">Bronsted Lowry Definition Proton (H^+) donors</p> <p style="text-align: center;">Strong Acids HCl HBr HI $AlCl_3$ $HClO_4$ H_2SO_4 HNO_3</p> <p style="text-align: center;">Lewis Definition e^- acceptors. ACID</p>	<p style="text-align: center;"><u>Bases</u></p> <p style="text-align: center;">pH > 7</p> <p style="text-align: center;">OH^- (hydroxide) only \ominus ion</p> <p style="text-align: center;">Proton (H^+) Acceptors. d. fers by only 1 (one) H^+</p> <p style="text-align: center;">Strong Bases P.T. Group 1 or $(C, B, S)_n$ Group 2 — OH</p> <p style="text-align: center;">e^- pair donors. Base</p>
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Conjugate Acid-Base Pair → d. fers by only 1 (one) H^+
 H_2SO_4 (A) ↔ HSO_4^- (B) + H^+
 (Dissociate ~100% into ions.)

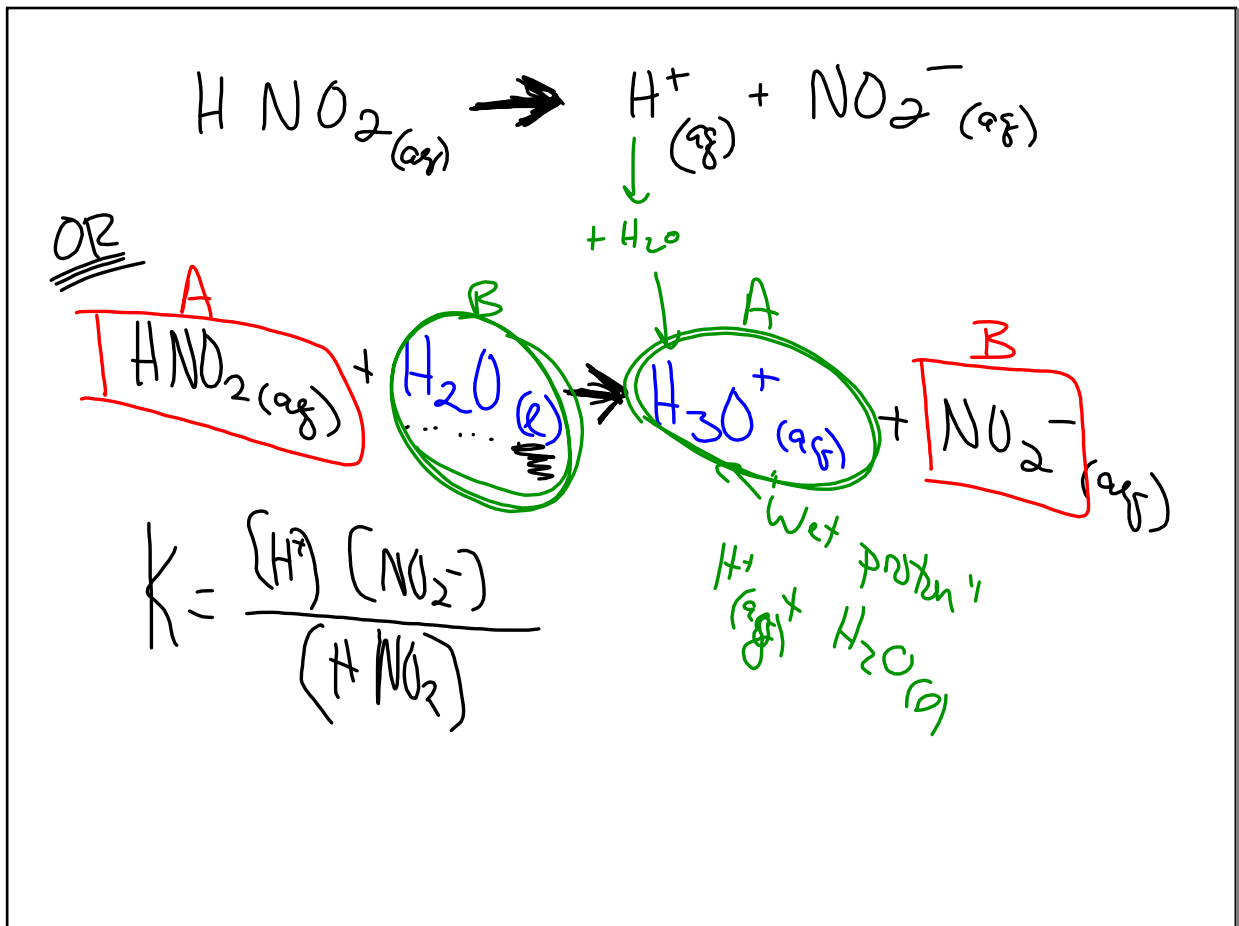
Mar 9-8:10 AM



Mar 9-8:20 AM



Mar 9-8:23 AM



Mar 9-8:29 AM

Dissociation of water

$$H_2O(l) \rightleftharpoons H^+_{(aq)} + OH^-_{(aq)}$$

$$\frac{K_c}{1} = \frac{[H^+][OH^-]}{[H_2O(l)]}$$

$[H_2O(l)] = 1$
 constant

$$K_c \{H_2O(l)\} = [H^+][OH^-]$$

$K_w = [H^+][OH^-]$
 $= [H_3O^+][OH^-]$

Mar 9-8:34 AM

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

constant for water

at 25°C

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

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

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

$pH + pOH = 14$

$[H^+][OH^-] = 1 \times 10^{-14}$
 at 25°C

Power of H^+ ↓
 ↑ Power of OH^-

Mar 9-8:37 AM

$\boxed{\text{pH} = 5}$

$\text{pOH} = ? = 9 \leftarrow \boxed{\text{pH} + \text{pOH} = 14}$

$[\text{H}^+] = ?$

$[\text{OH}^-] = ?$

$\text{pH} = -\log [\text{H}^+]$

$5 = -\log [\text{H}^+]$

$-5 = \log [\text{H}^+]$

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

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

$(1 \times 10^{-5})([\text{OH}^-]) = 1 \times 10^{-14}$

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

Mar 9-8:43 AM

$16 / 20, 22, 28, 40$

Mar 9-8:45 AM