

# Acid, Base, Salts - Chap 16+17

ACIDS

$H^+$  only  $\oplus$  ion

$pH < 7$

Bases

$OH^-$  only  $\ominus$  ion

$pH > 7$

Arrhenius Defn

$pH \approx$  logarithmic scale (Power of 10)

$pH 7 \rightarrow pH 6 \rightarrow pH 5$

$10 \times$  stronger acid

$10 \times$

$100 \times$

$10^2 = 100$

$10^3 = 1000$

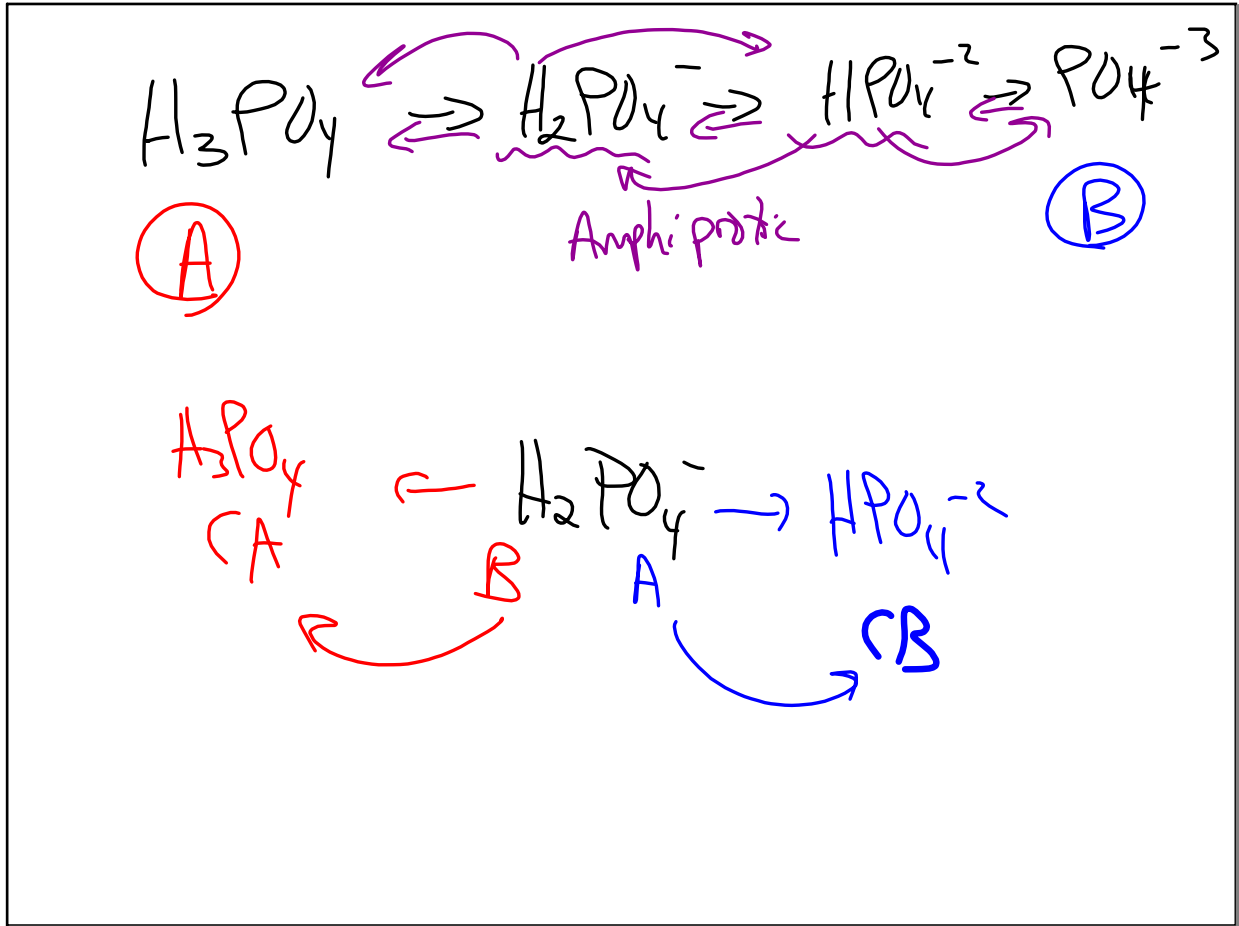
$10^x$

$\Delta pH$

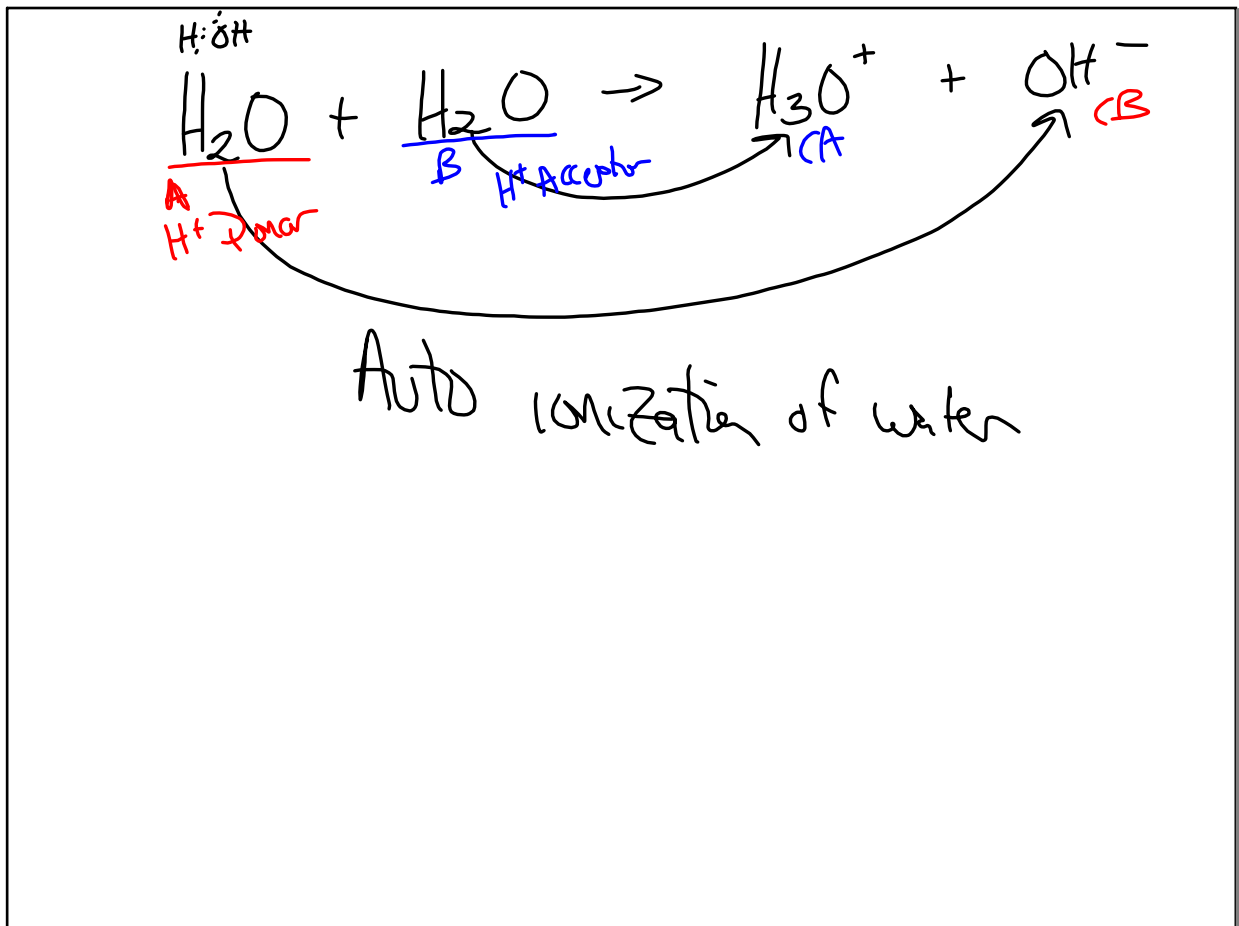
Feb 14-7:50 AM

<p><u>ACID</u></p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <math>H^+ + OH^- \rightleftharpoons H_2O</math> </div> <p>Neutralization</p> <p><u>Strong Acids</u> <math>\Rightarrow</math> Dissociate <math>\approx 100\%</math></p> <p>HCl, HBr, HI</p> <p><math>H_2SO_4, HNO_3</math></p> <p><math>HClO_3, HClO_4</math></p> <p><u>ACID</u></p> <p><math>H^+</math> DONORS</p> <p><math>\rightarrow</math> PROTON</p>	<p><u>Base</u></p> <p><math>H_2O</math> (neutral)</p> <p>Neutralization</p> <p><u>Strong Bases</u> <math>\Rightarrow</math> Dissociate <math>\approx 100\%</math></p> <p>Group 1 OH</p> <p>Ca, Ba, Sr (p2) <math>(OH)_2</math></p> <p><u>BASE</u></p> <p><math>H^+</math> ACCEPTORS</p> <p><math>\leftarrow</math> PROTON</p>
<p>Brønsted-Lowry Defn</p> <p>ONE PROTON reaction.</p>	
<p><math>H_2SO_4 \rightleftharpoons H^+ + HSO_4^-</math></p> <p style="text-align: right; margin-right: 50px;"><small>intermediate of a polyprotic acid</small></p> <p><math>HSO_4^- \rightleftharpoons H^+ + SO_4^{2-}</math></p> <p style="text-align: right; margin-right: 50px;"><small>OR Amphoterics Amphiprotic</small></p>	

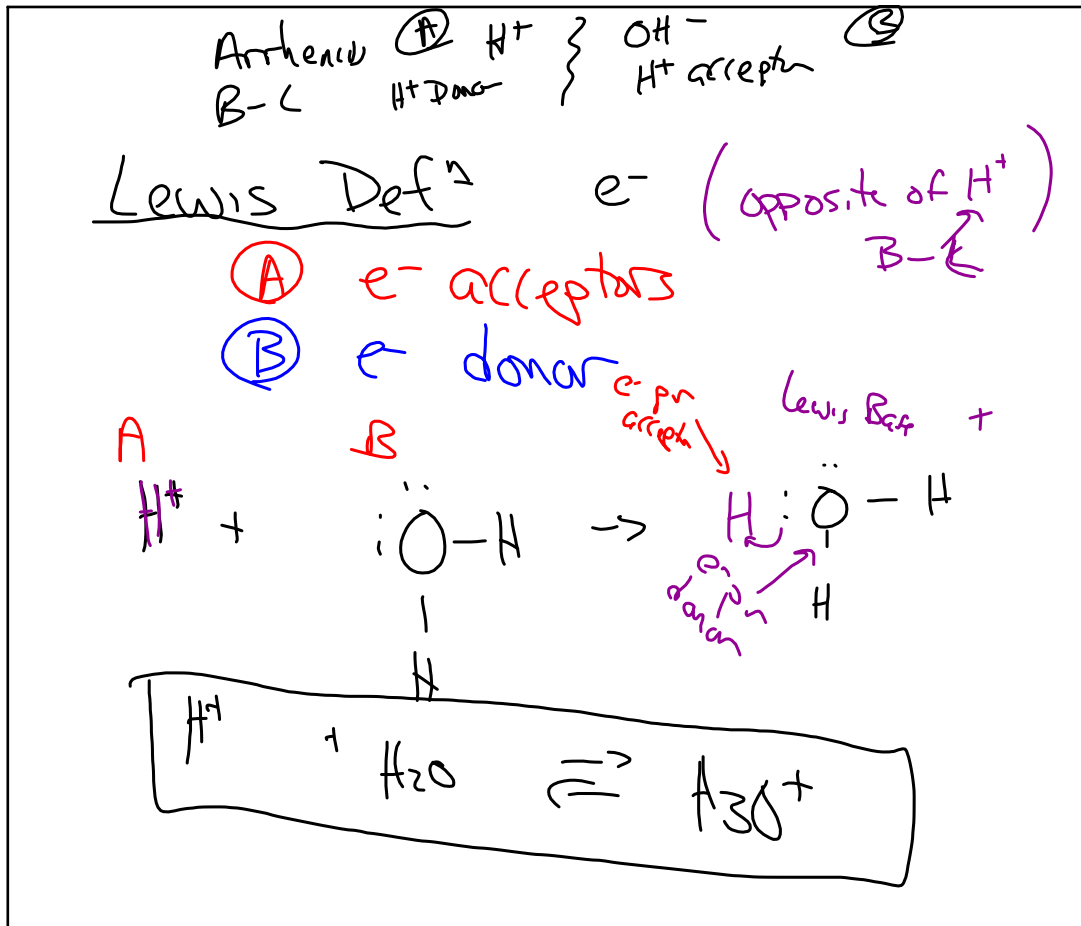
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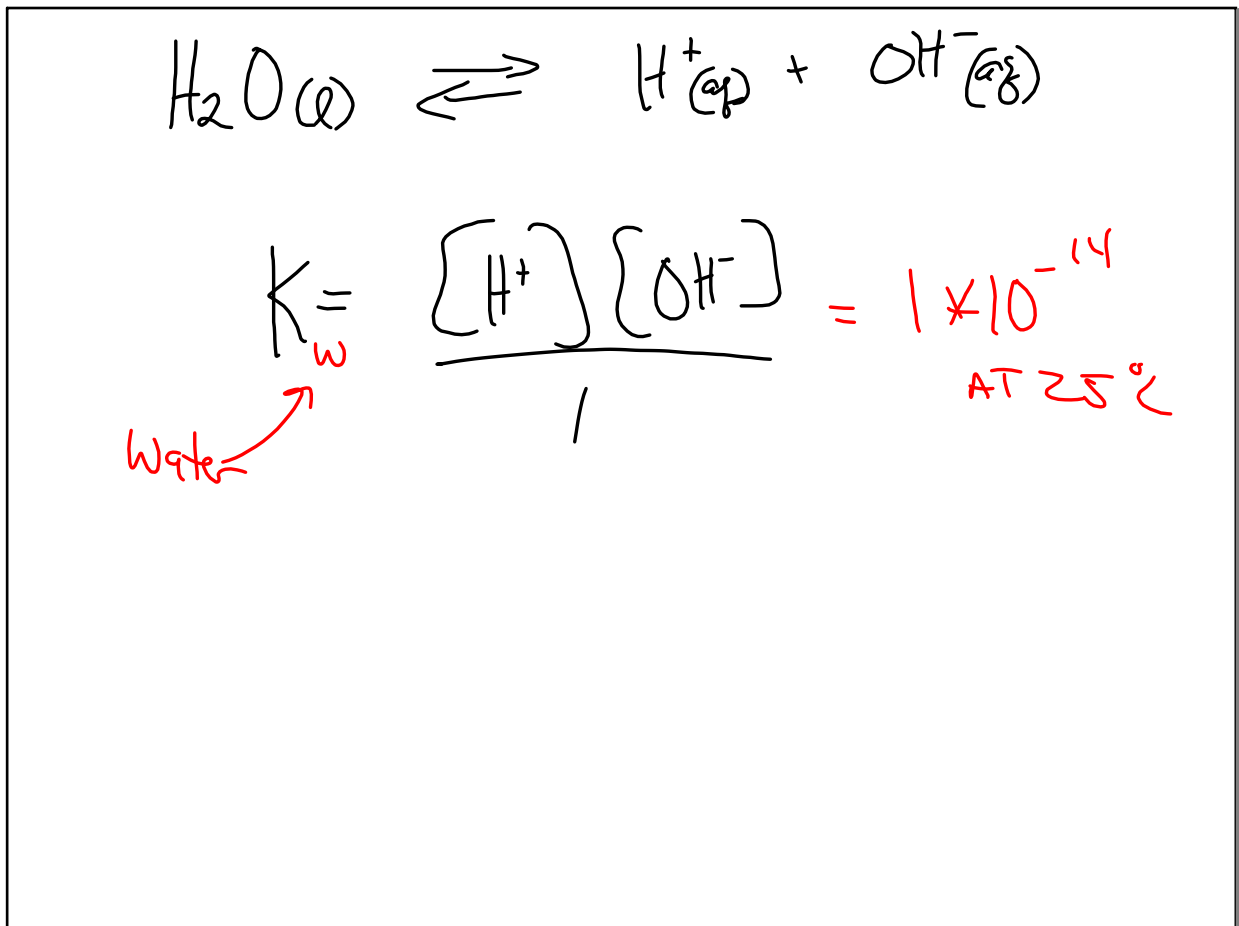
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Feb 14-8:32 AM



Feb 14-8:35 AM



Feb 14-8:40 AM

$$\textcircled{1} \quad K_w = \frac{[H^+]}{10^{-2}} \frac{[OH^-]}{10^{-12}} = 1 \times 10^{-14}$$

$$\textcircled{2} \quad pH = -\log [H^+]$$

$$\textcircled{3} \quad pOH = -\log [OH^-]$$

$$\textcircled{4} \quad \underset{2}{pH} + \underset{12}{pOH} = 14$$

Feb 14-8:42 AM

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

$$2 = -\log [H^+]$$

$$-2 = \log [H^+]$$

$$[H^+] = 10^{-2}$$

16  
20, 22, 28, 40

Feb 14-8:44 AM