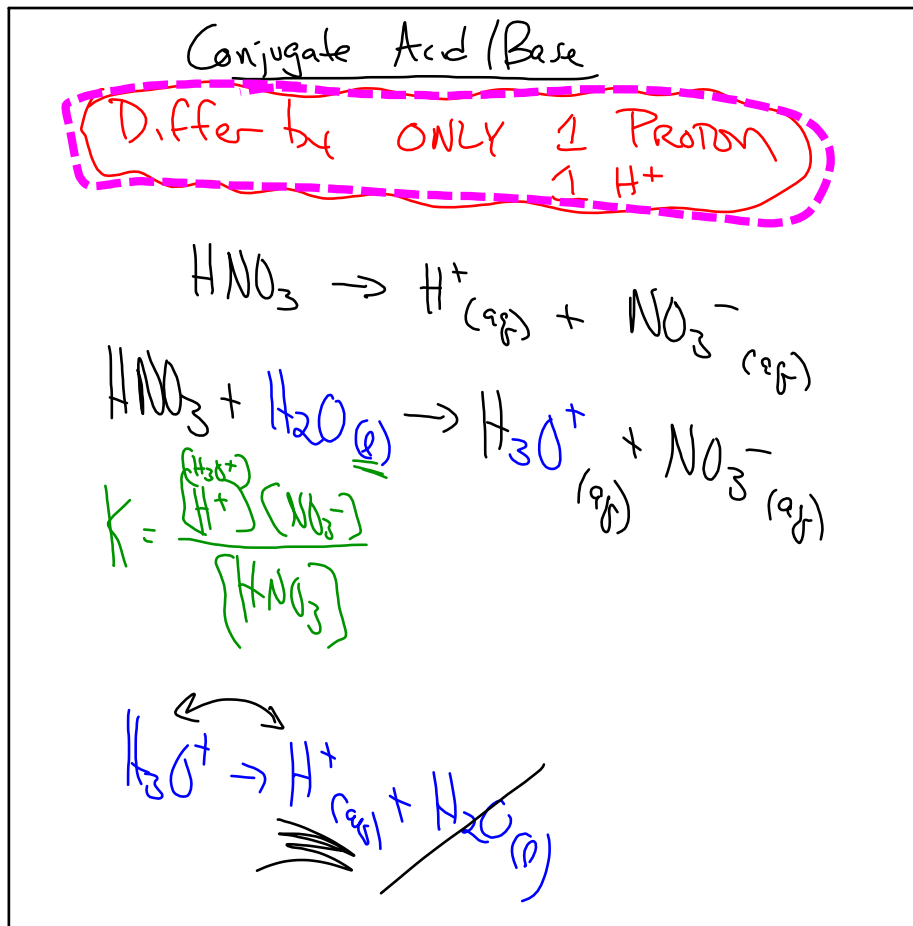
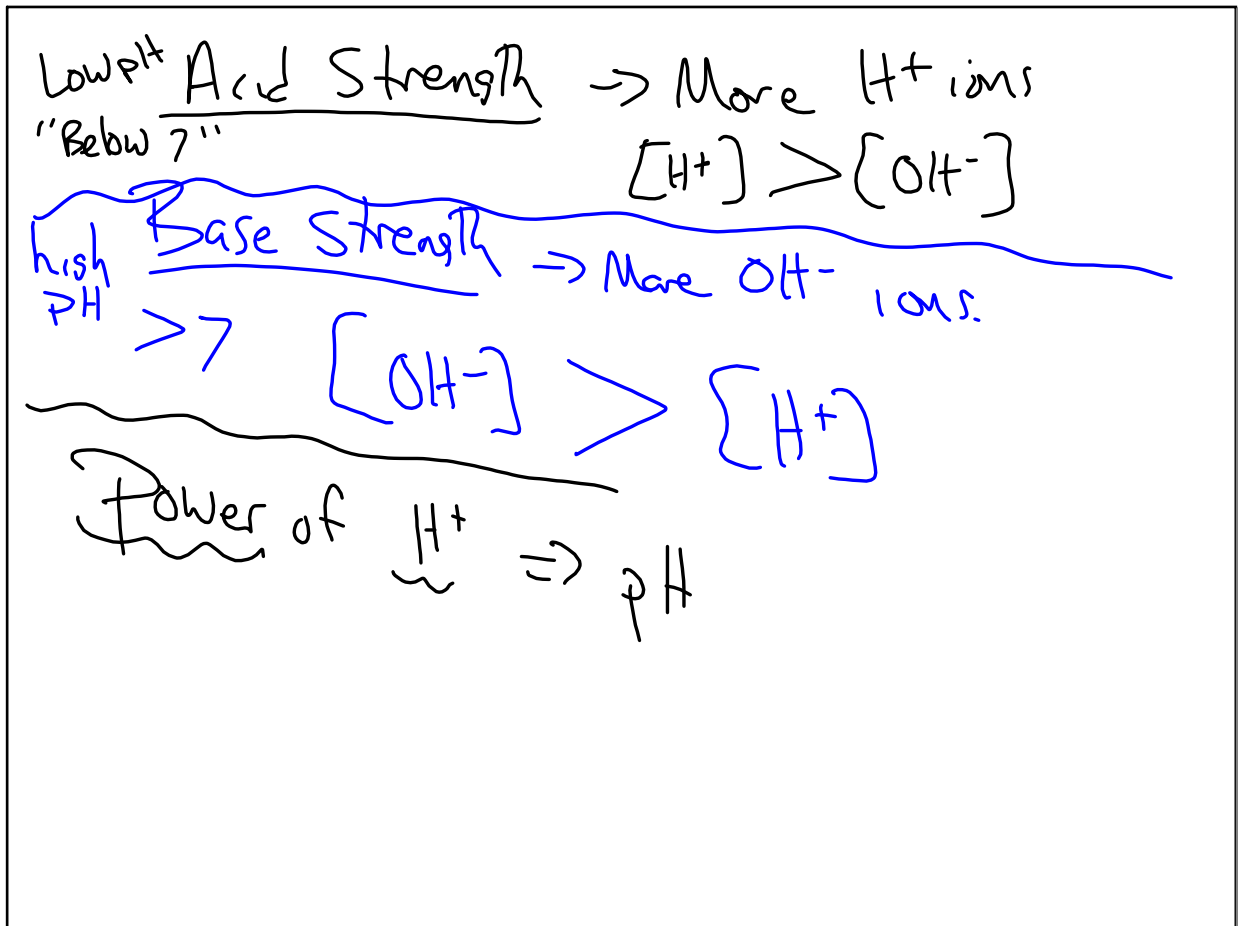


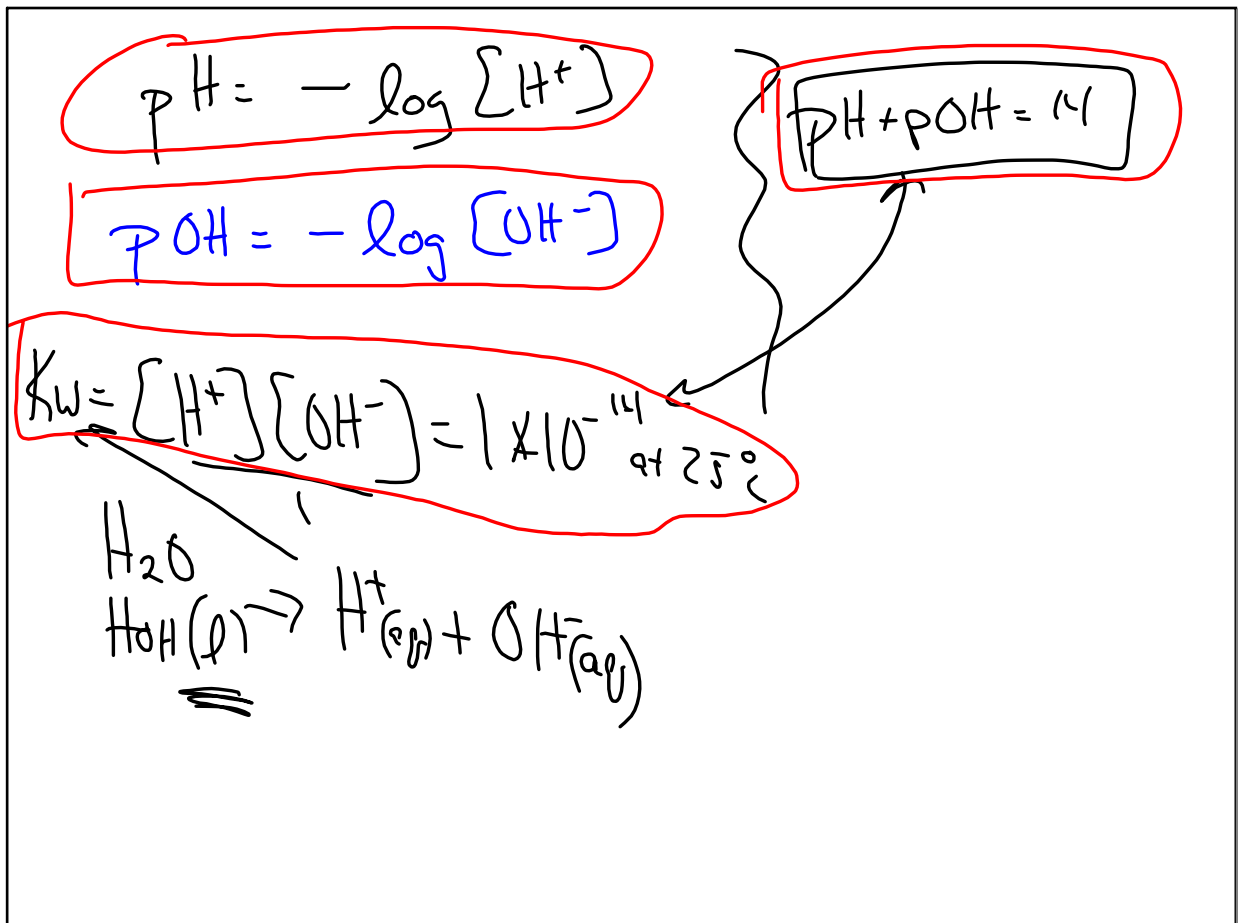
Mar 15-7:37 AM



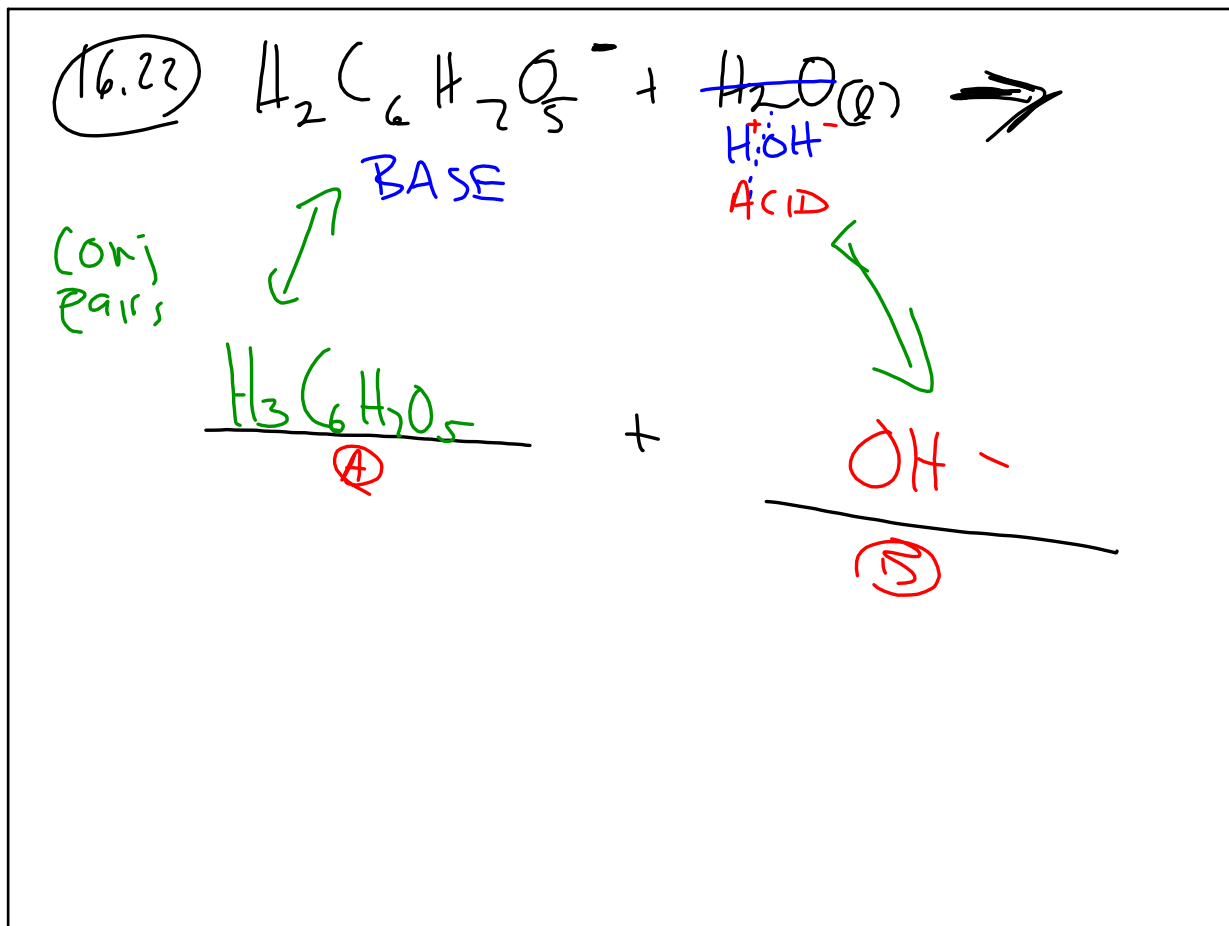
Mar 15-8:18 AM



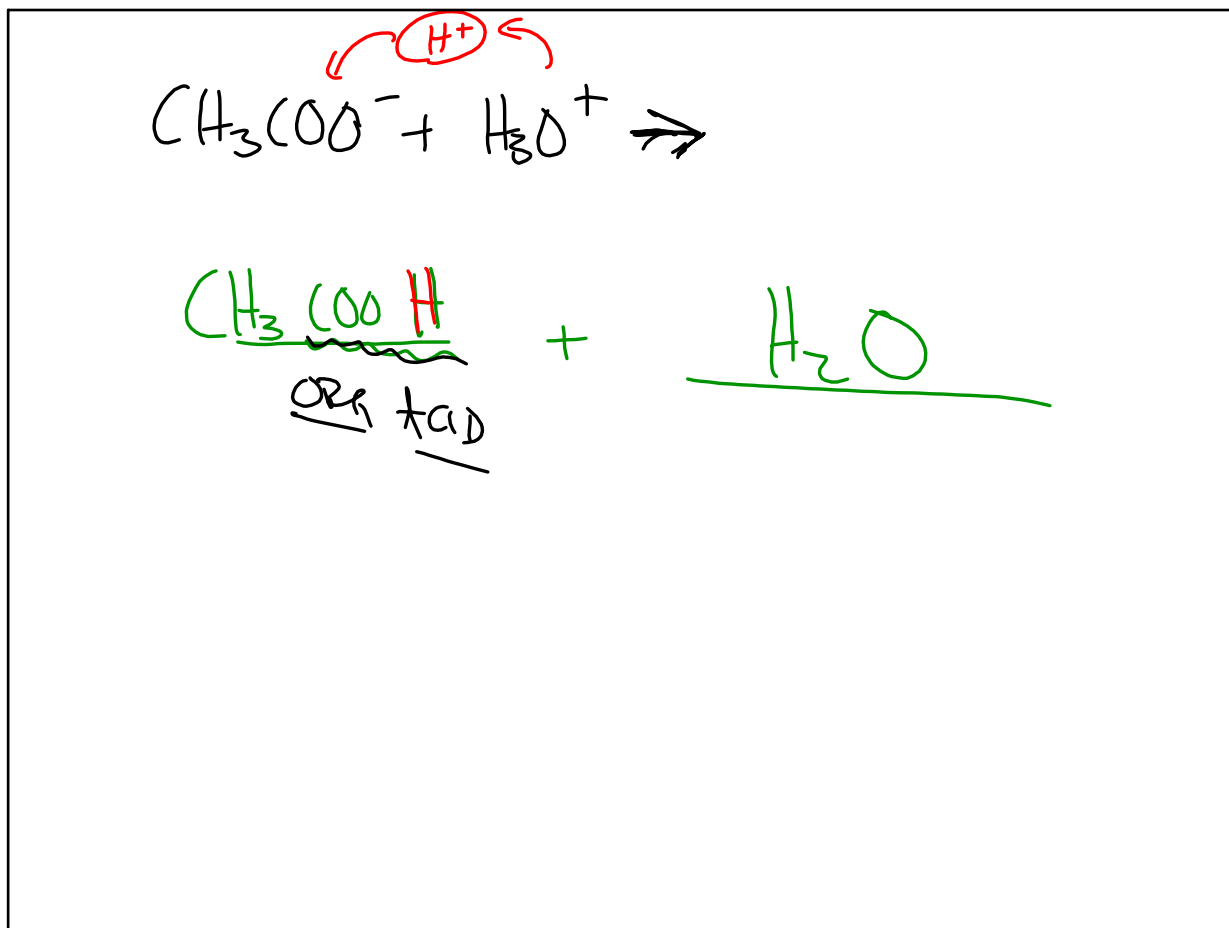
Mar 15-8:24 AM



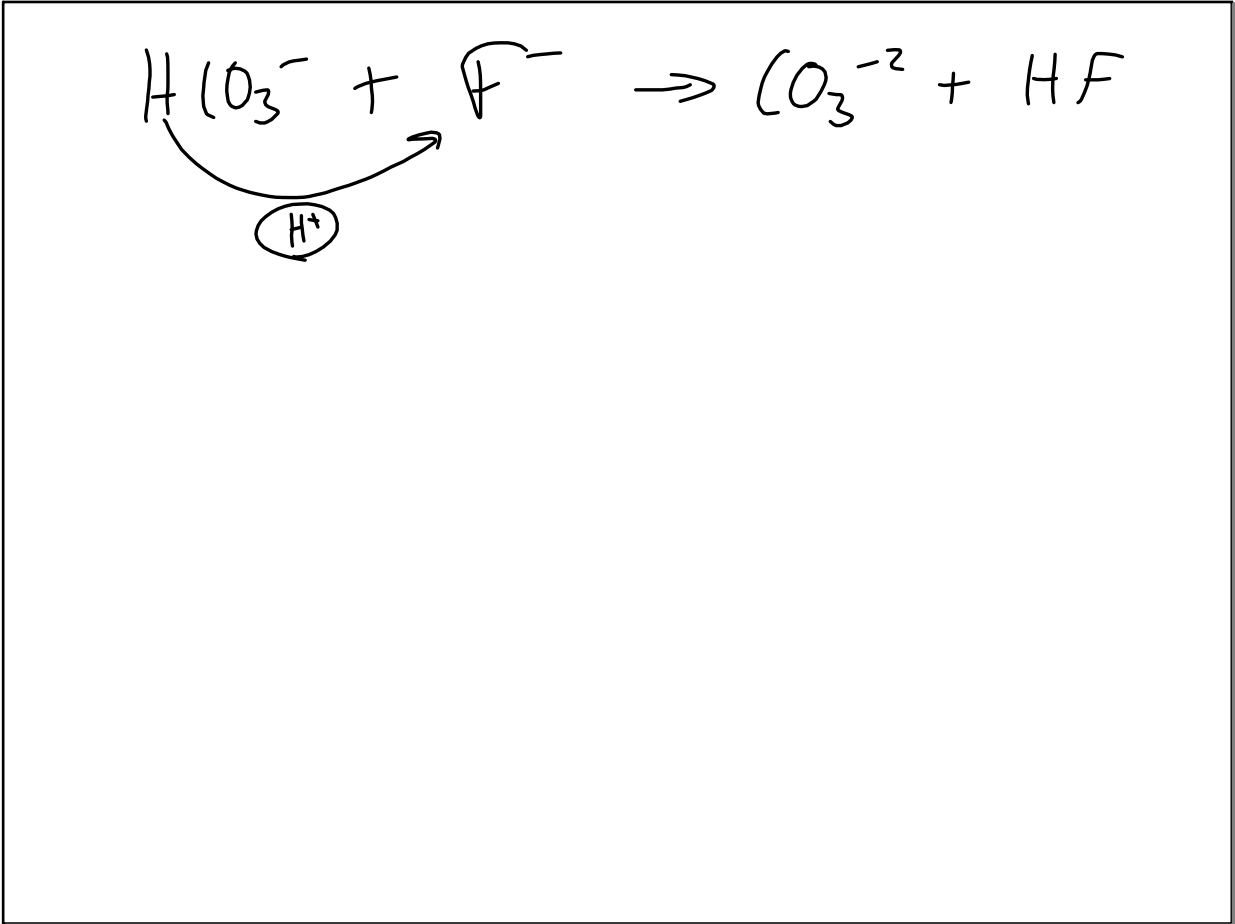
Mar 15-8:26 AM



Mar 15-8:37 AM



Mar 15-8:42 AM



Mar 15-8:44 AM

$[\text{H}^+], [\text{OH}^-], \text{pH}, \text{pOH}, \text{A/B?}$   
 $7.5 \times 10^{-3} [\text{H}^+]$   
 $[\text{H}^+]$

$\text{pH} = -\log(7.5 \times 10^{-3}) = 2.12$

$\text{pH} + \text{pOH} = 14$   
 $11.88 \text{ pOH}$

$[\text{OH}^-]$   
 $K_w [\text{H}^+][\text{OH}^-] = 1 \times 10^{-14}$   
 $(7.5 \times 10^{-3}) [\text{OH}^-] = 1 \times 10^{-14}$   
 $[\text{OH}^-] = 1.33 \times 10^{-12}$

$\text{pOH} = -\log[\text{OH}^-]$   
 $11.88 = -\log[\text{OH}^-]$   
*\* MOVE @ sign BEFORE you anti-log*  
 $-11.88 = \log[\text{OH}^-]$   
 $[\text{OH}^-] = 1.33 \times 10^{-12}$

Mar 15-8:45 AM

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

$$pOH = -\log [OH^-]$$

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

$$pH + pOH = 14$$

Mar 15-8:59 AM

### Strong Acids

Dissociate (Breakup)  $\approx 100\%$   
(into ions)

R	$1 \text{ HNO}_3 (aq)$	$\rightarrow$	$1 \text{ H}^+ (aq)$	$+ 1 \text{ NO}_3^- (aq)$
H	2M		<del>0</del>	<del>0</del>
C	$\rightarrow 2$		$+ 2$	$+ 2$
E	$\approx 0M$		2M	2M

MOLE RATIO

$$pH = -\log [H^+] \leftarrow \boxed{pH = -0.3}$$

$$pOH = 14.3$$

Mar 15-9:00 AM

**3M NaOH**      PH=?

SB (SPI)

I	NaOH 3	→	Na <sup>+</sup> 3		OH <sup>-</sup> 3
Δ	- 3		+ 3		+ 3
E	≈ 0		3		3

$PH + pOH = 14$   
 $pOH = -\log(OH^-) = -0.48$   
PH = 14.48

Mar 15-9:07 AM

0.8M Ca(OH)<sub>2</sub>      PH=?

(SA)

I	Ca(OH) <sub>2</sub> 0.8	→	Ca <sup>2+</sup> 0.8	+	2OH <sup>-</sup> 1.6
Δ	- 0.8		+ 0.8		+ 1.6
E	≈ 0		0.8		1.6

MOLE RATIO

$PH + pOH = 14$   
 $pOH = -\log(1.6) = 0.2$   
PH = 14.2

Mar 15-9:14 AM

WEAK ACID P1115  $K_a$

$$\text{HF} \rightarrow \text{H}^+ + \text{F}^-$$

I	0.5	0	0
D	-x	+x	+x
E	0.5-x	x	x

MOLE RATIOS

$\text{pH} = -\log[\text{H}^+] = 1.74$

$x = 0.018$

$$K_a = \frac{[\text{H}^+][\text{F}^-]}{[\text{HF}]} = \frac{6.8 \times 10^{-4}}{1} = \frac{(x)(x)}{0.5-x}$$

$$x^2 = 3.4 \times 10^{-4} - 6.8 \times 10^{-4}x$$

$$x^2 + 6.8 \times 10^{-4}x - 3.4 \times 10^{-4} = 0$$

$x_1 = 0.018$

~~$x_2 = -0.018$~~

Mar 15-9:20 AM

HW

16 / 49, 53, 57, 63

RICE

Mar 15-9:31 AM