$pH = -\log[H^+]$ or $[H_3O^+]$

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

$K_w = K_a * K_b$

$[H^+][OH^-] = 1\times10^{-14} = K_w$

$pH + pOH = 14$

$pH = pK_a + \log\frac{b}{a}$

Acid K_a

H^+, H^+ donor

e^- pr acceptor

Base K_b

OH^-, H^+ acceptor

e^- pr donor

$\ominus$ charge $\rightarrow$ e^- pr

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Conjugates → NH_4^+, NH_3

↳ differ by only 1 H^+

Hydrolysis - Add H_2O Salt → A → N

→ B

SA $H\ominus$, Cl^-, Br^-, I^-, NO_3^-, SO_4^{2-}, ClO_3^-, ClO_4^-

SB Grp 1, Ca^{2+}, Ba^{2+}, Sr^{2+} Grp 2

Work ⇒ RICE Table

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Neut / Titration

1. Need -> MOLES
2. Balance NET IONIC Eqn
3. a. Neut using moles. Subt smallest #
   b. ATEQ, Recalc new M 70ts/volume
   c. Find pH, (H+), pOH, [OH-]

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II $Ba(OH)_2 \rightarrow Ba^{+2} + 2OH^-$

3) SB

0.35M 0.70M

1 : 2

III 2.5 M HCl (OH^-)

SA

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

Pure

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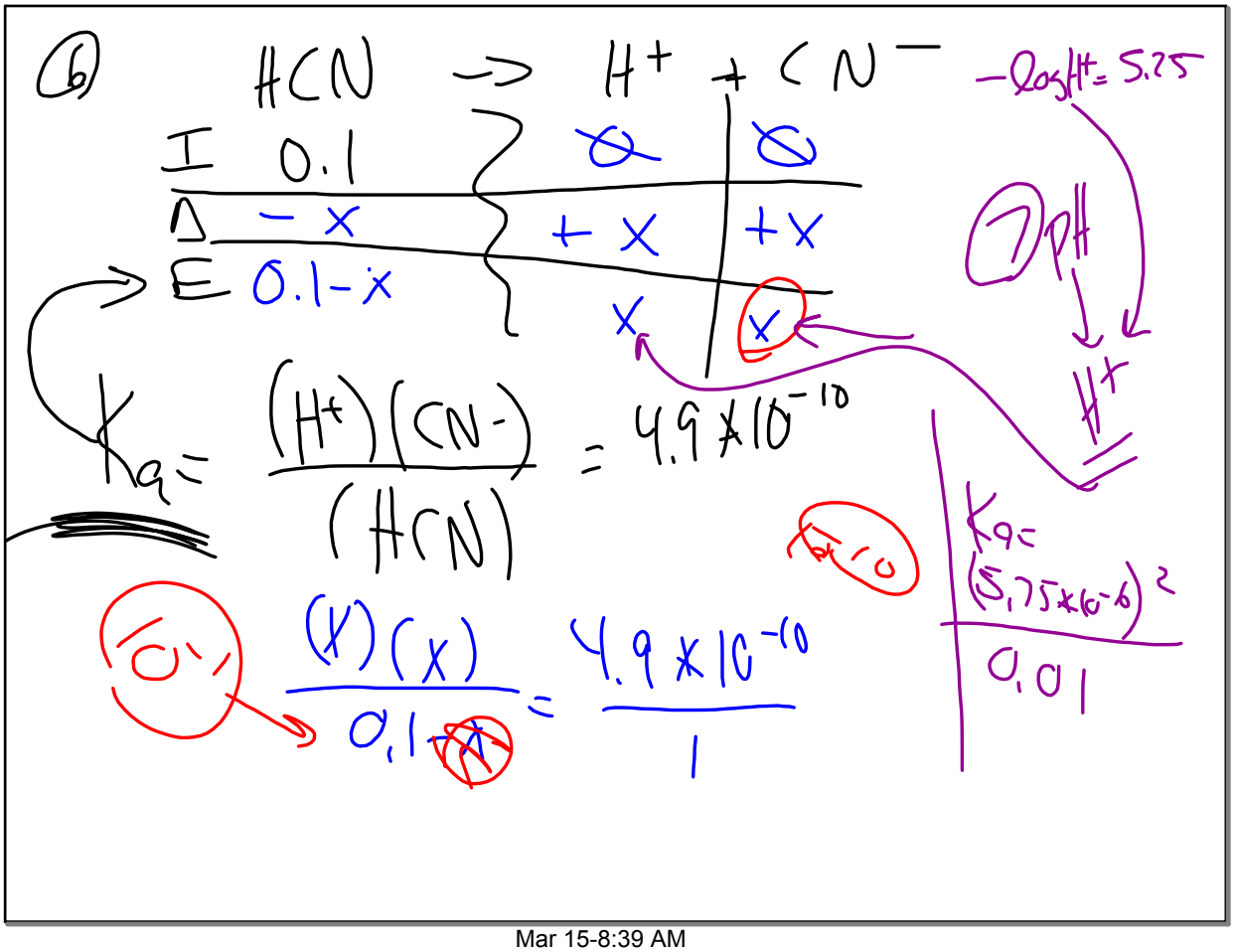

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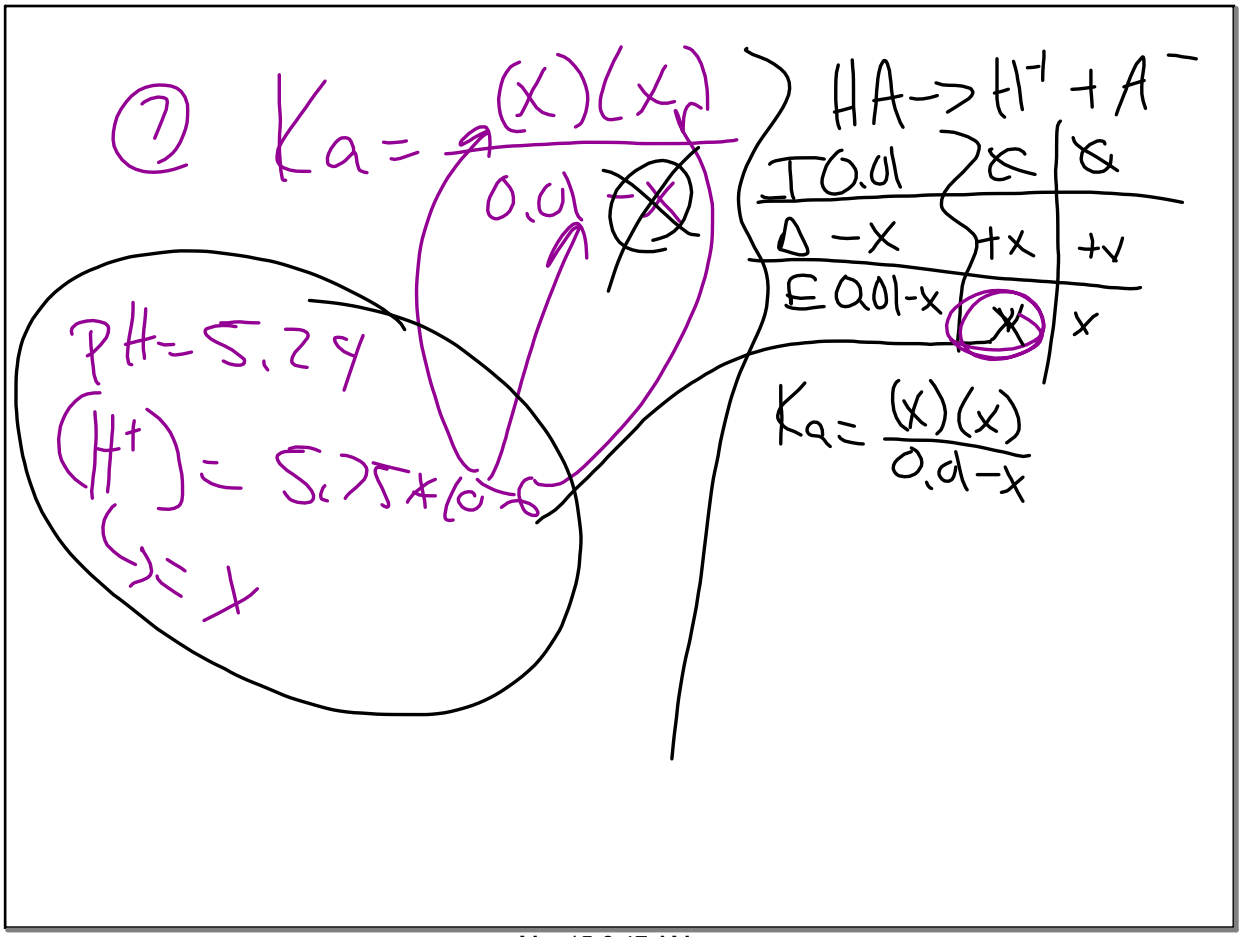

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(13) $HA \rightleftharpoons H^+ + A^-$

If Add products Then
then rxn ←

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(10) $NH_3 + HOH \rightarrow NH_4^+ + OH^-$

	NH_3	HOH	NH_4^+	OH^-
I	0.1		0	0
Δ	−x		+x	+x
E	0.1 − x		x	x

$$K_b = \frac{(NH_4^+)(OH^-)}{(NH_3)} = \frac{1.8 \times 10^{-5}}{1} = \frac{(x)(x)}{0.1}$$

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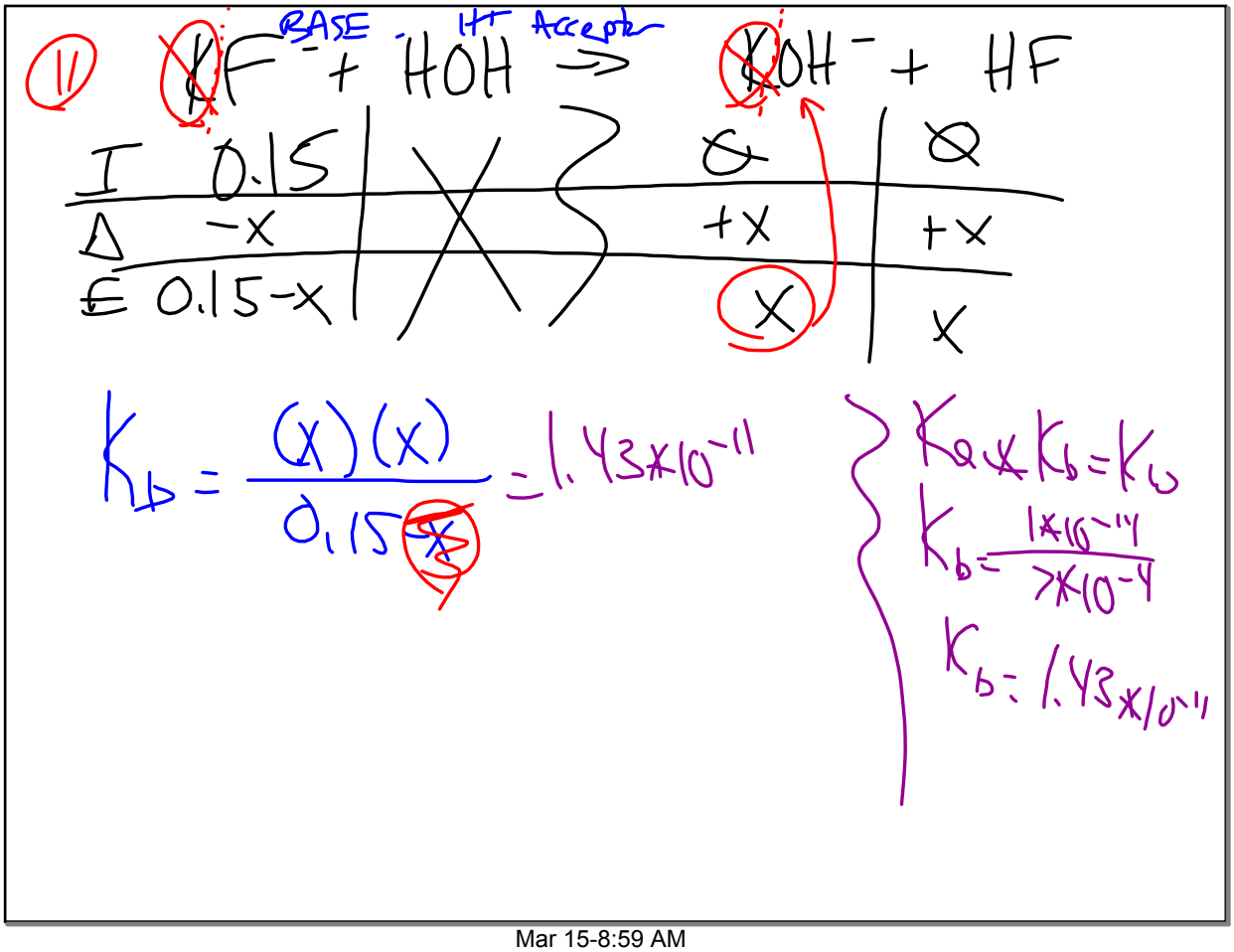

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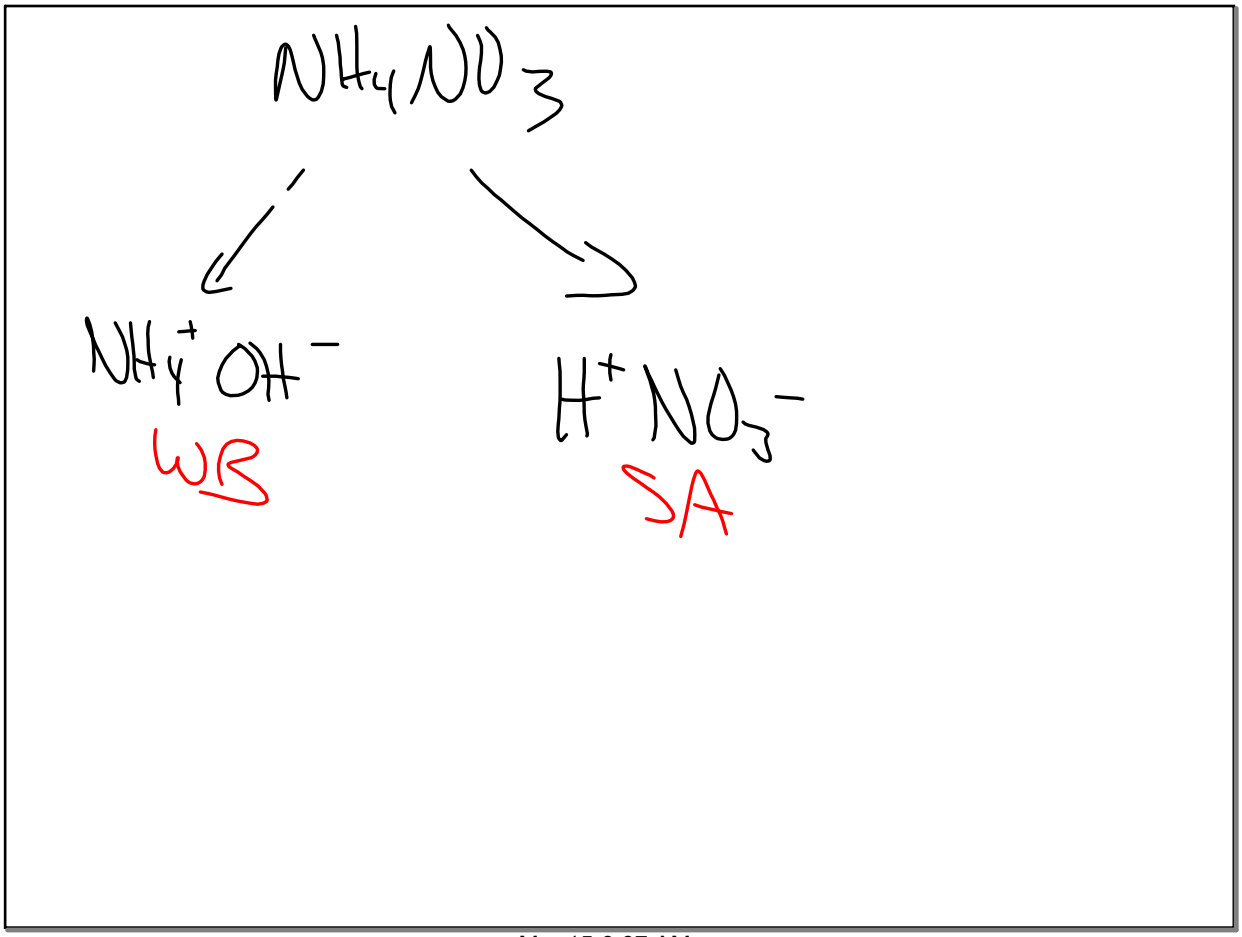

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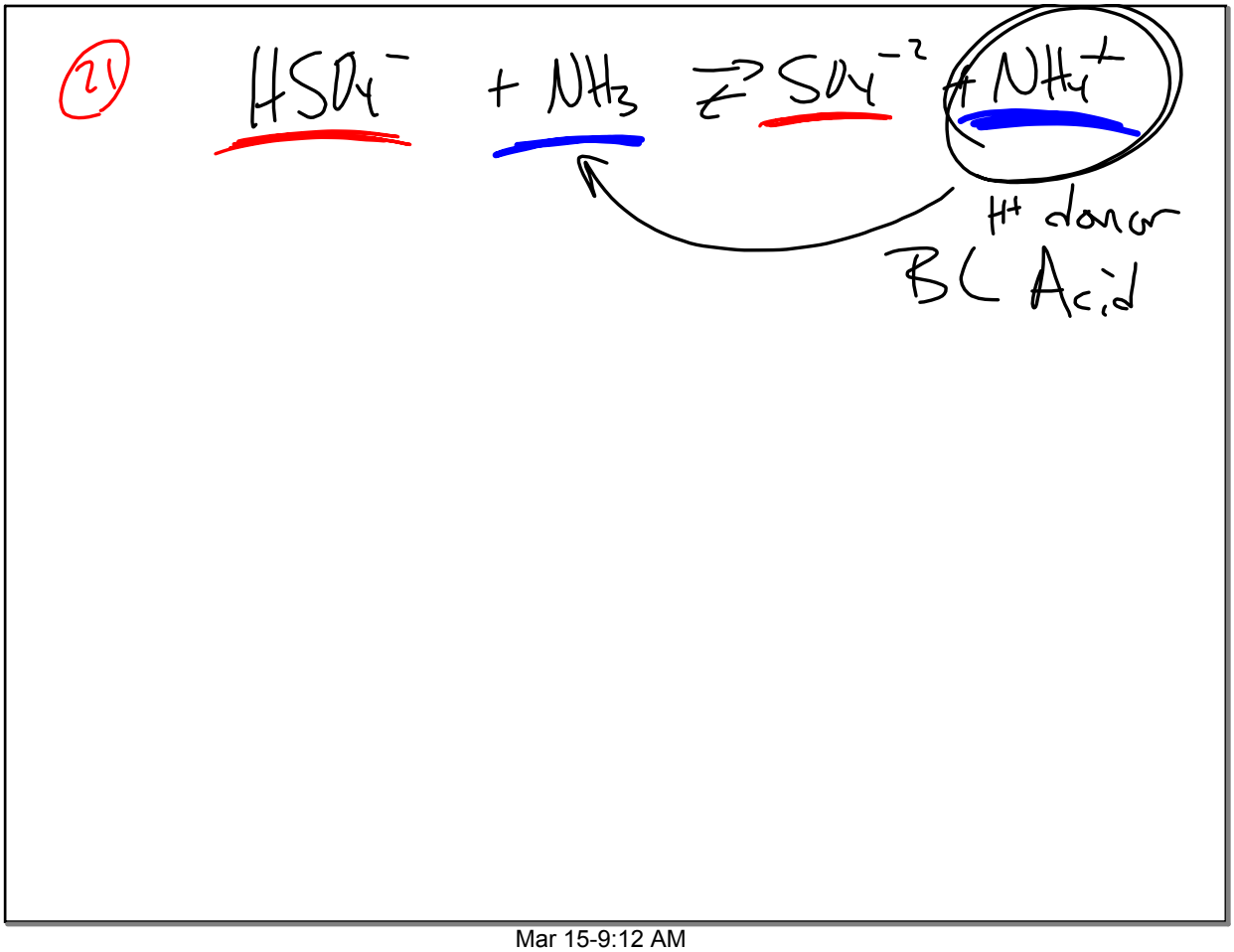

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