PS16-2

(12) ↑ [OH⁻]

(a) pH = 3 → pOH = 11 , $[OH^-] = 1 \times 10^{-11}$

(b) 1×10^{-4} M HNO_3 (H^+) SA ⇒ $[OH^-] = 1 \times 10^{-10}$

(c) pOH = 12 ⇒ $[OH^-] = 1 \times 10^{-12}$

(d) Water pH = 7 → pOH = 7 $[OH^-] = 1 \times 10^{-7}$

Feb 27-7:45 AM

CHAP 17 - Common ion effect

Cation ⊕ in common

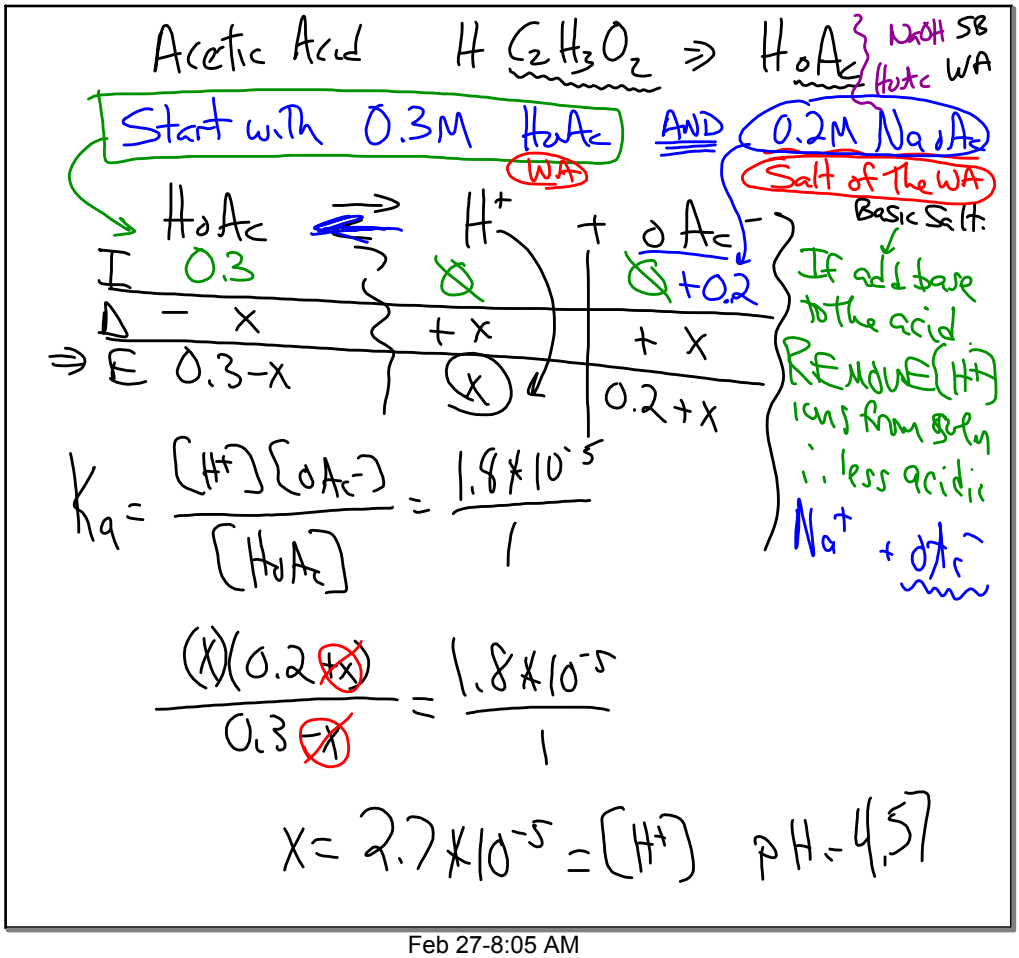
Anion ⊖ in common

Effect the equilibrium

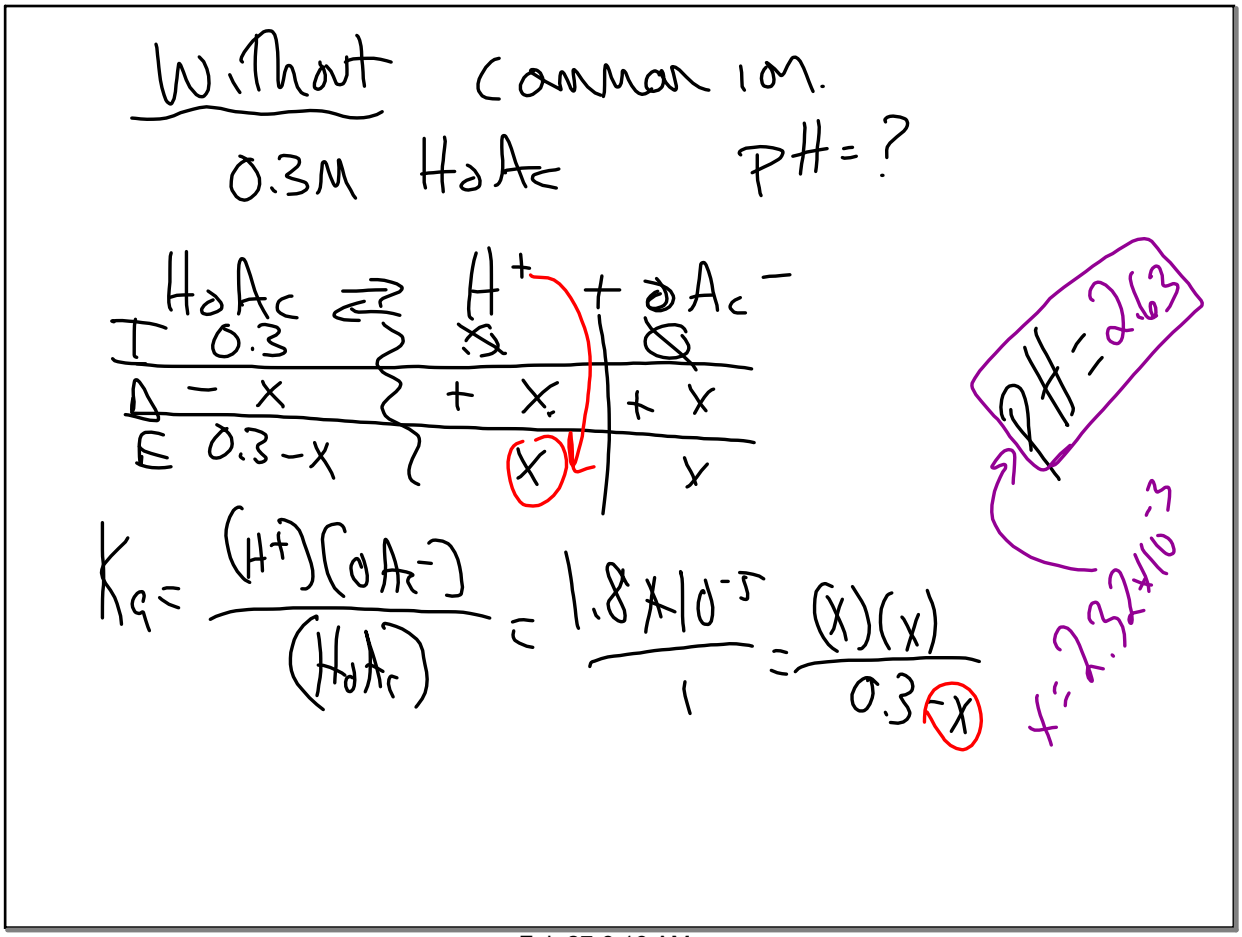
NaCl

Na^+ Cl^-

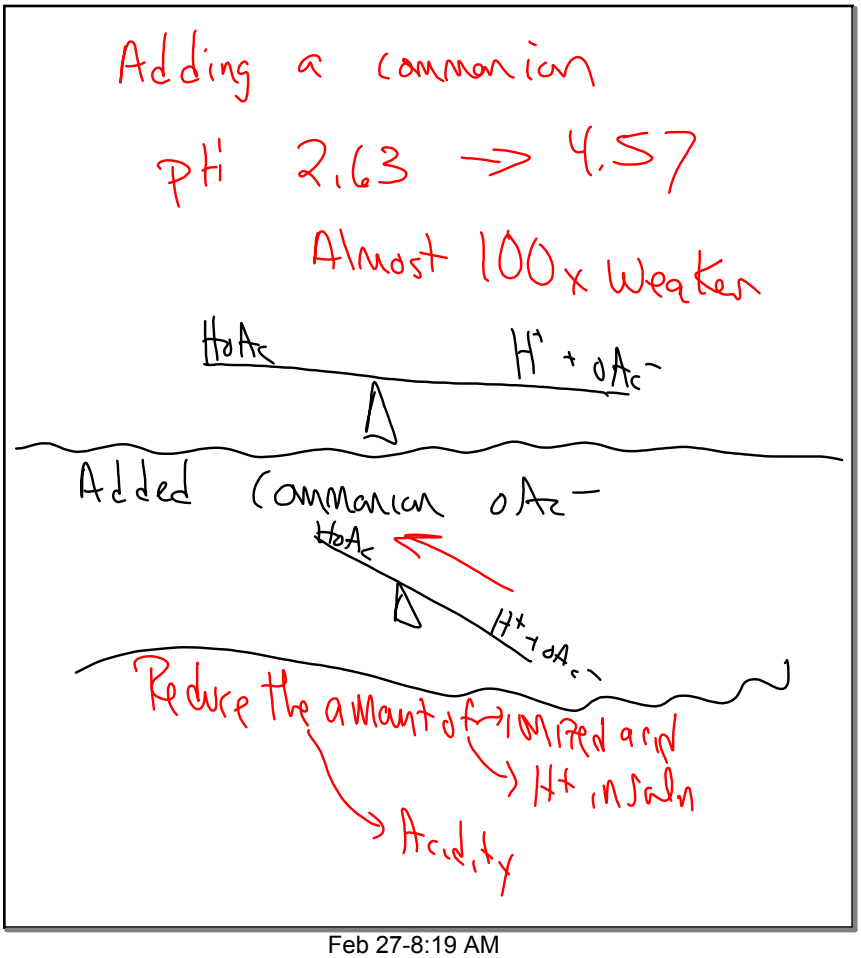
Feb 27-8:01 AM



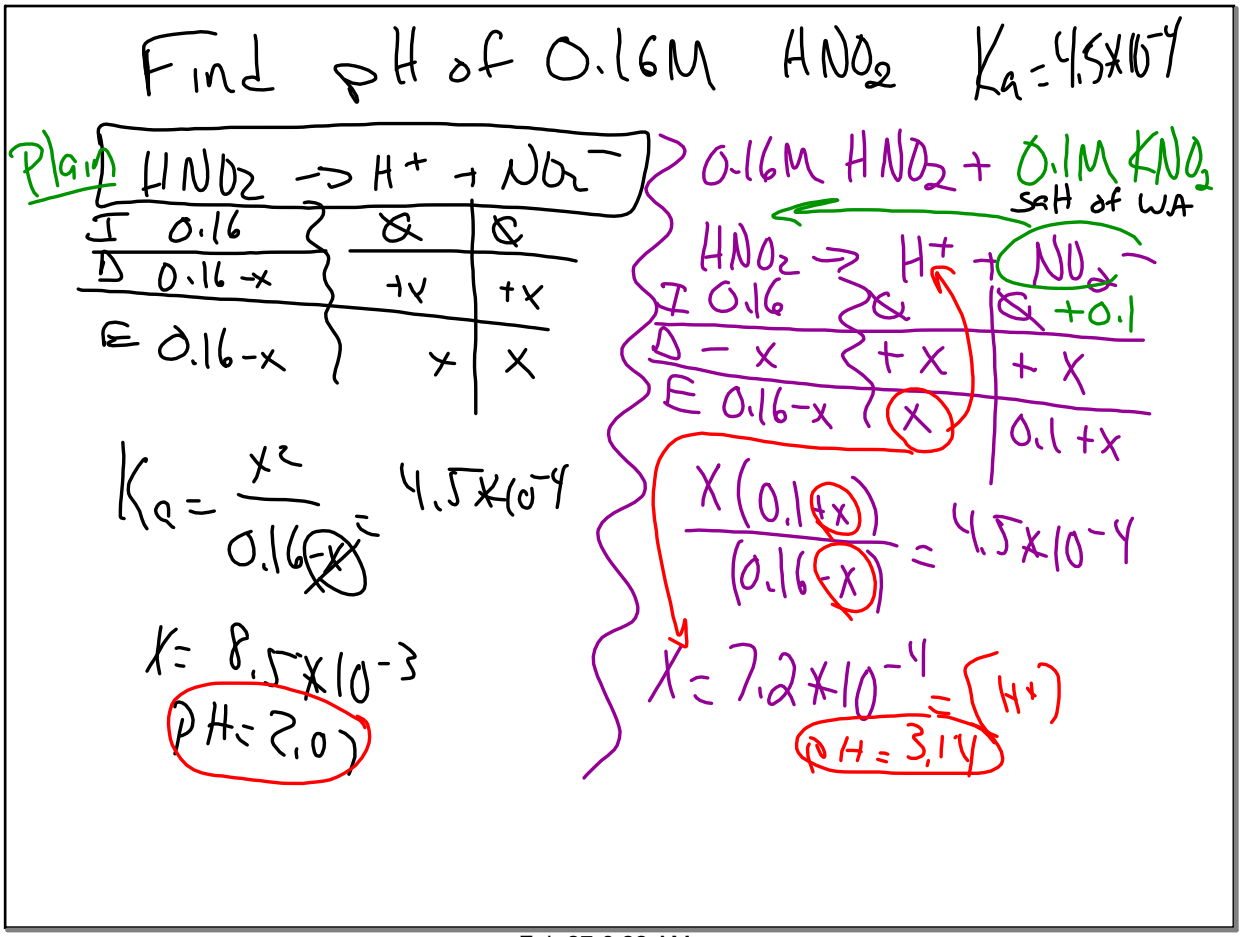
Feb 27-8:05 AM



Feb 27-8:16 AM



Feb 27-8:19 AM



Feb 27-8:22 AM

Henderson Hasselbach eqn.
pH of buffers. WA + salt of WA

Feb 27-8:50 AM

$$HA \rightleftharpoons H^+ + A^-$$

$$K_a = \frac{[H^+][A^-]}{[HA]}$$

$$[H^+] = \frac{K_a [HA]}{[A^-]}$$

$$-\log[H^+] = -\log K_a + -\log \frac{[HA]}{[A^-]}$$

$$pH = pK_a + \log \frac{[A^-]}{[HA]}$$

Buffer

Acid

Feb 27-8:54 AM

$pH = pK_a + \log \frac{base}{acid}$ $\left\{\frac{A^-}{HA}\right.$

$pK_a = -\log(K_a)$

$0.16\,M\ HNO_2 + 0.1\,M\ KNO_2$

$K_a = 4.5 \times 10^{-5}$

$pH = -\log(4.5 \times 10^{-4}) + \log \frac{0.1}{0.16}$

$pH = 3.14$

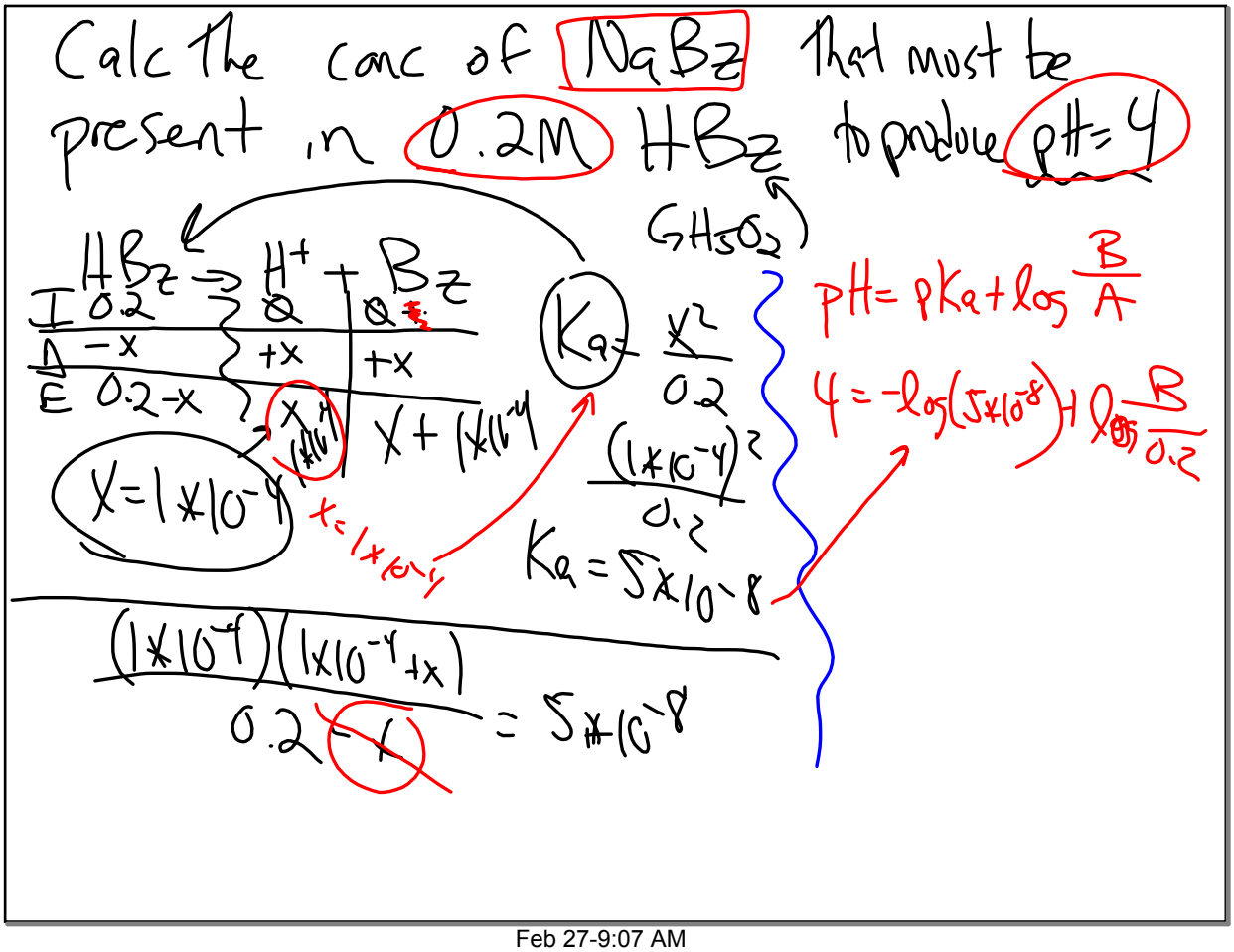
Feb 27-9:00 AM

When $[HA] = [A^-]$

$pH = pK_a + \log \frac{B}{A}$

$pH = pK_a + \log \frac{1}{1} + 0$

Feb 27-9:06 AM



Feb 27-9:07 AM

17 / 16 a+c, 18

Feb 27-9:15 AM