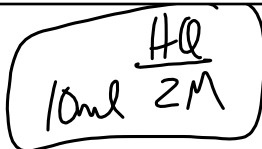


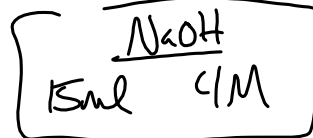
Mole, A = Mole, B
 $M_A \times V_A = M_B \times V_B$
 $(1)(0.105) \text{ ml} = (1)(0.095)(45)$
40.7 ml

Reagents
5-4-6

Mar 11-7:37 AM



+
 pH = ?

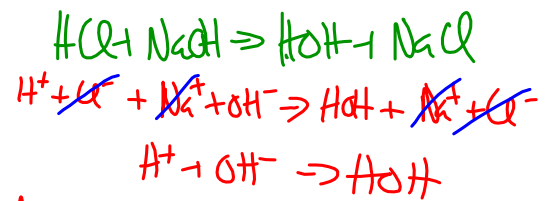


① Neutralize using moles

R → $H^+ + OH^- \rightarrow H_2O$

10.02	0.06	3	0
1-0.02	-0.02	2	+0.02
E 0	0.04	2	0.02

mole
SB



Net ionic eqn

② Recalc new M

$\frac{0.04 \text{ mole}}{0.025L} = 1.6M NaOH = 1.6M OH^-$

③ pH

$pOH = -\log(OH^-)$
 $pOH = -\log(1.6)$
 $pH = 14 - pOH$
14.704

Mar 11-7:55 AM

27ml 1M HF + 5ml 0.23M NaOH

$\text{HF} + \text{NaOH} \Rightarrow \text{NaF} + \text{H}_2\text{O}$
 $\text{HF} + \text{Na}^+ + \text{OH}^- \Rightarrow \text{Na}^+ + \text{F}^- + \text{H}_2\text{O}$

① Nest - Mdes

HF	+ OH ⁻	→	F ⁻	+ H ₂ O
I 0.027	0.00115			
D -0.00115	-0.00115		+0.00115	
E 0.02585			0.00115	

② Calc → 32ml or 0.032L

$\frac{0.02585}{0.032} = 0.808 \text{ M HF}$

$\frac{0.00115}{0.032} = 0.036 \text{ MF}$

③ $\text{pH} = \text{pK}_a + \log \frac{[b]}{[a]}$

$\text{pH} = -\log(6.8 \times 10^{-4}) + \log \frac{0.036 \text{ M}}{0.808 \text{ M}}$

pH = 1.82

Mar 11-8:06 AM

27ml 1M HF

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

I	1		
D	-x	+x	+x
E	1-x	x	x

$\frac{x^2}{1-x} = 6.8 \times 10^{-4}$

$x = 0.026 \text{ M} = [\text{H}^+]$

pH = 1.58

Mar 11-8:21 AM

① Just Acid - K_a RICE (WA)

② Just Base - K_b RICE (WB)

③ Salt.

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

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

$$pH + pOH = 14$$

~~$NaF + H_2O \rightleftharpoons HF + NaOH$~~

$F^- + H_2O \rightleftharpoons HF + OH^-$

Base (B-) No K_b for F^- ion.

K_a for HF *conj. acid*

$K_a \times K_b = K_w$

Mar 11-8:37 AM

④ Acid + Base (Neut / Titration)

- ⓐ neut. with mols
- ⓑ Recalc new M
- ⓒ Find pH or pOH.

$H-H$

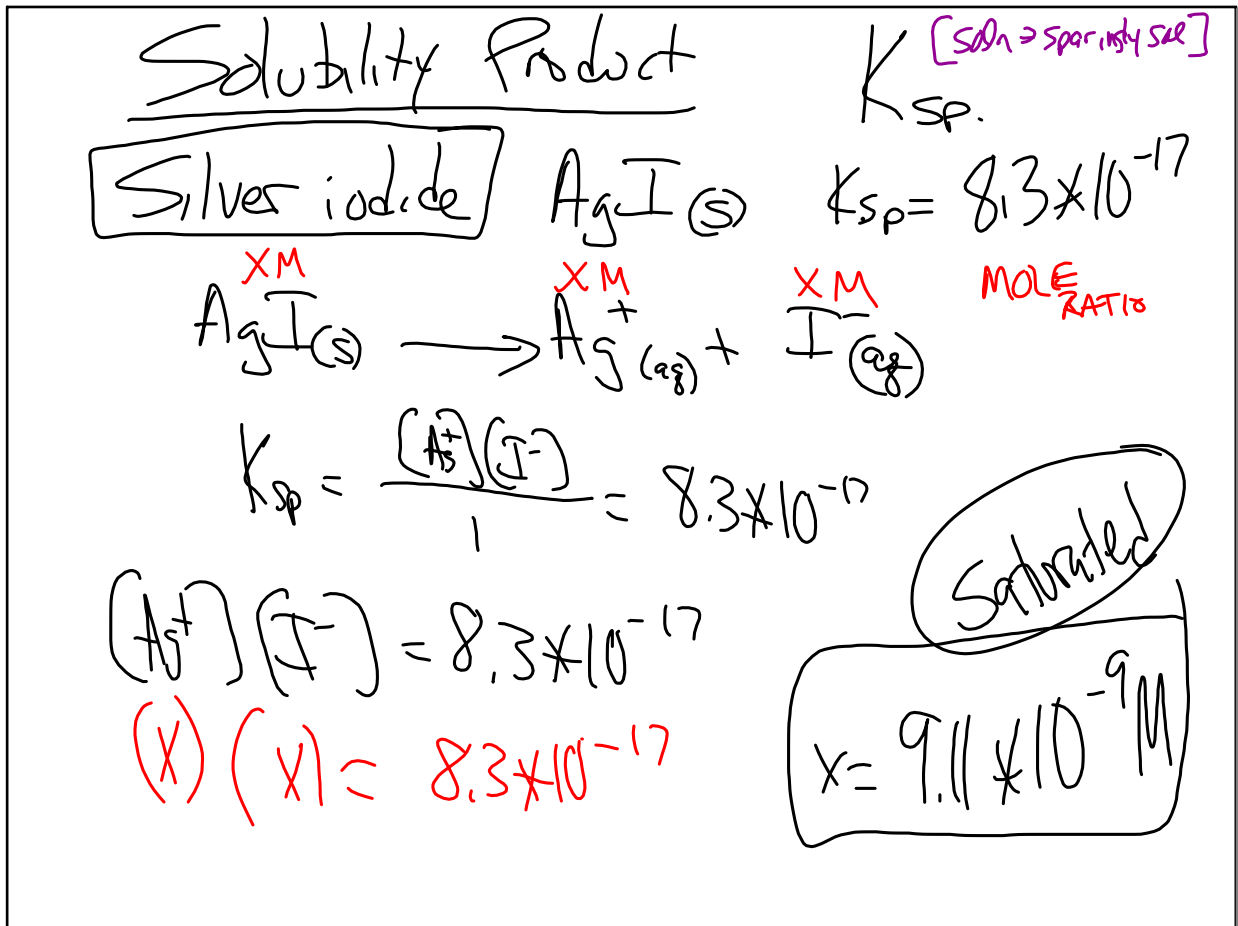
$pH = pK_a + \log \left(\frac{base}{acid} \right)$

or

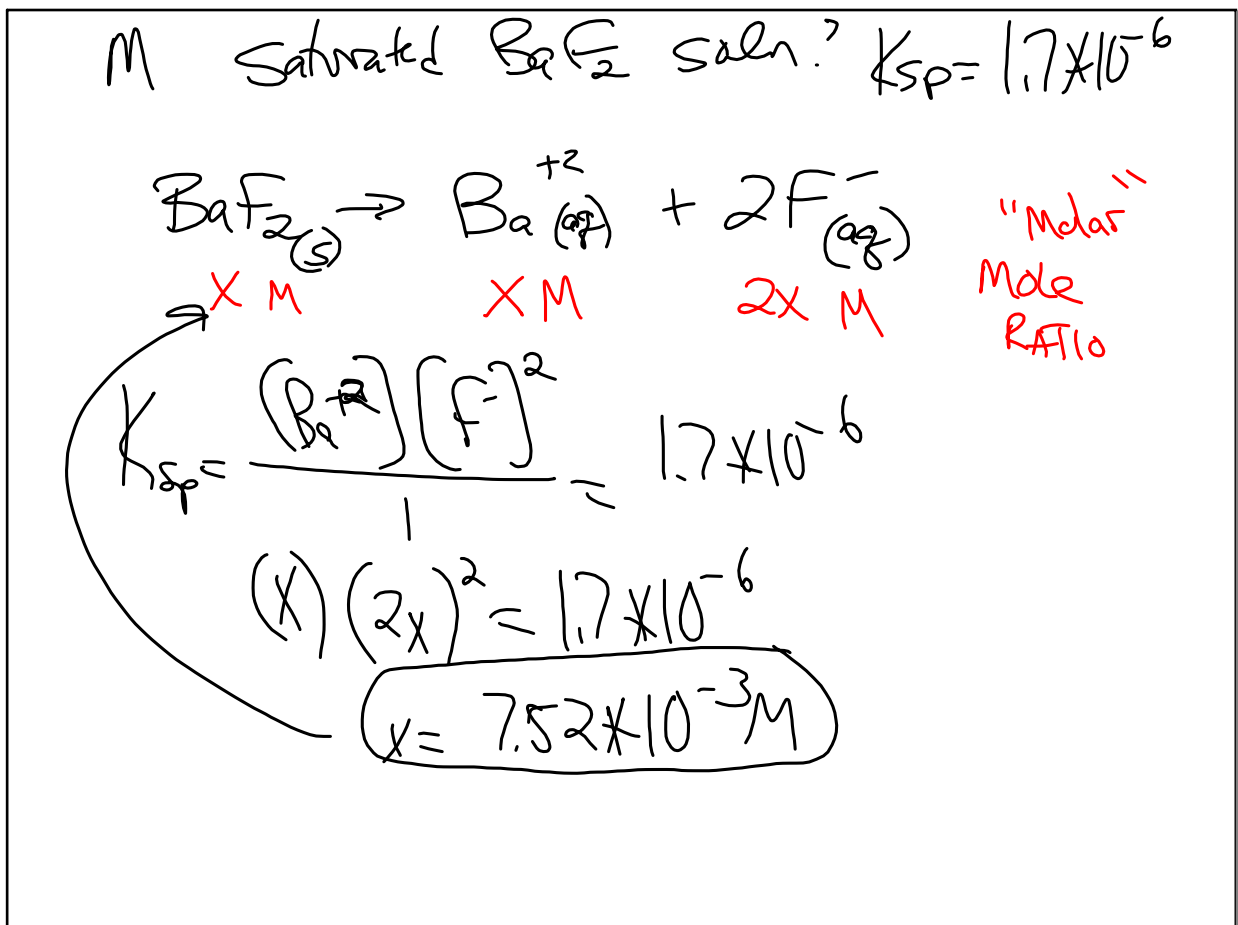
RICE

⇌ Buffer
WA + Conjugate base

Mar 11-8:39 AM



Mar 11-8:44 AM



Mar 11-8:51 AM

Equivalence Point VS Endpoint
of a titration

↙
 $Moles A = Moles B$

↓
Indicator changes color

Mar 11-8:58 AM

$BaSO_4(s) \rightleftharpoons Ba^{+2}(aq) + SO_4^{-2}(aq)$

Add in $BaCl_2(aq)$ (common ion)

$BaCl_2(aq) \rightleftharpoons Ba^{+2}(aq) + 2Cl^{-}(aq)$

↓ K_{sp}

More $BaSO_4$ ppt's out less soluble

Mar 11-9:06 AM

Dre Tues

① PS 17-1 # 1-23

② 2015 Exam #2

Mar 11-9:16 AM