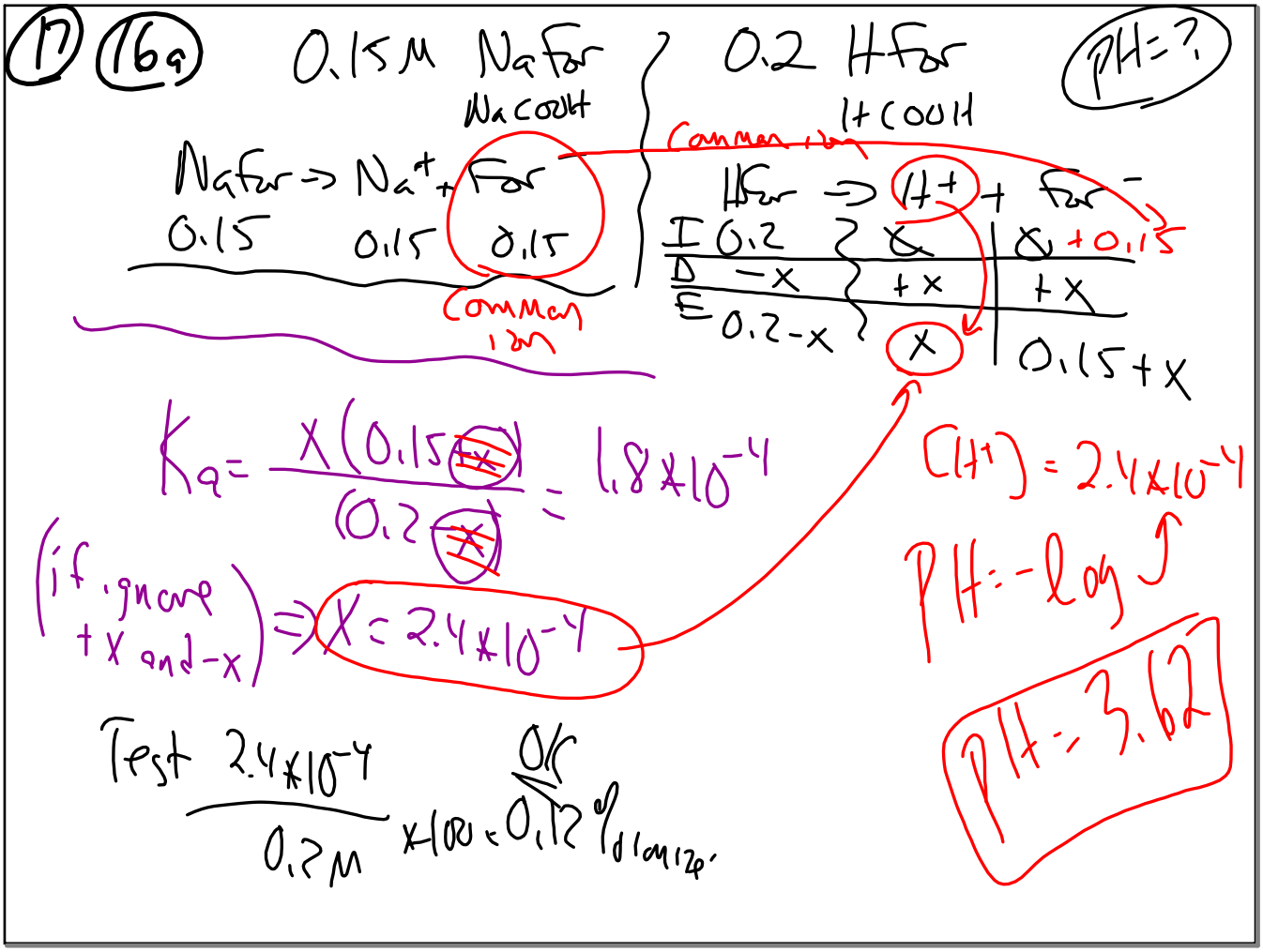
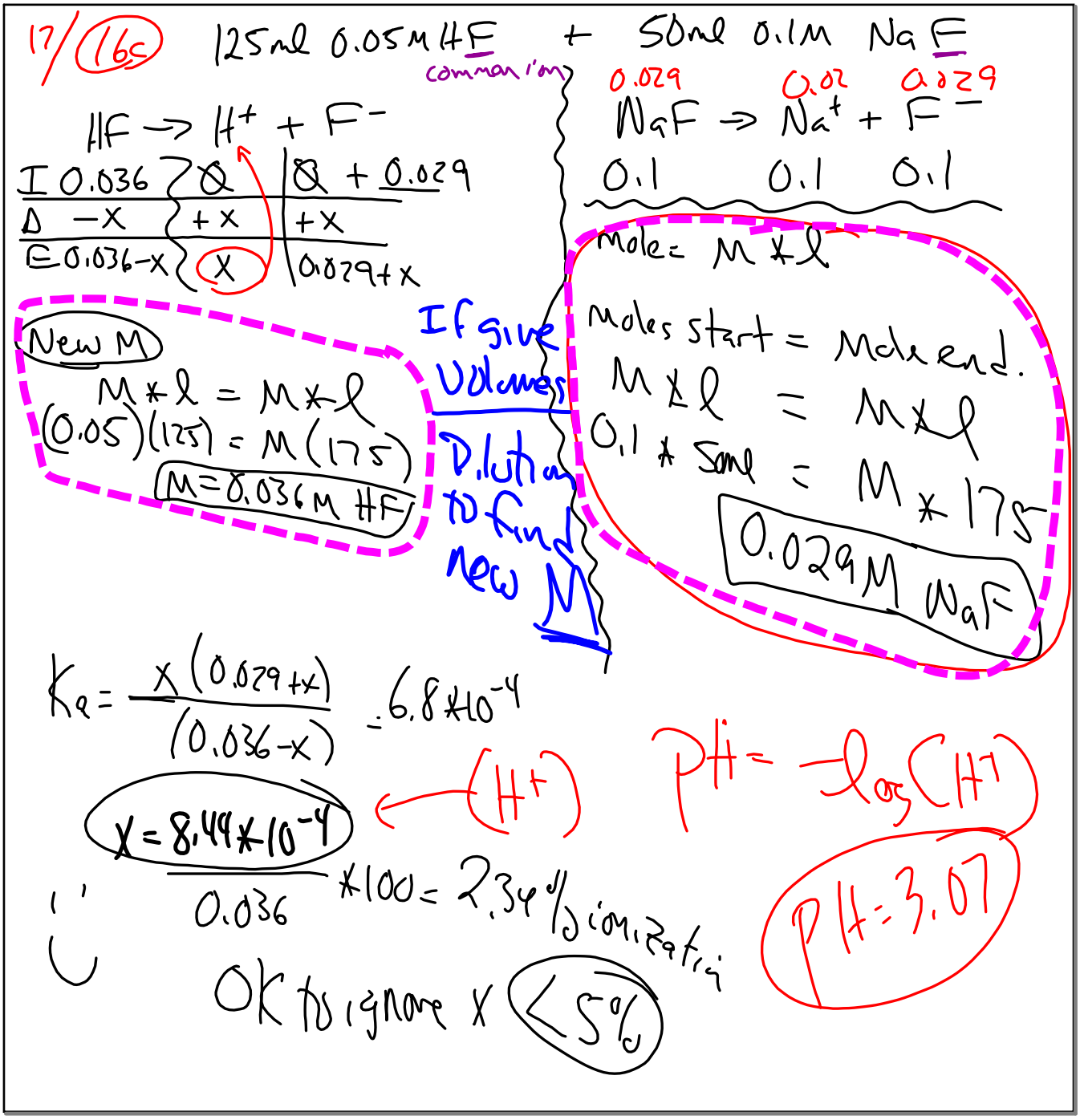
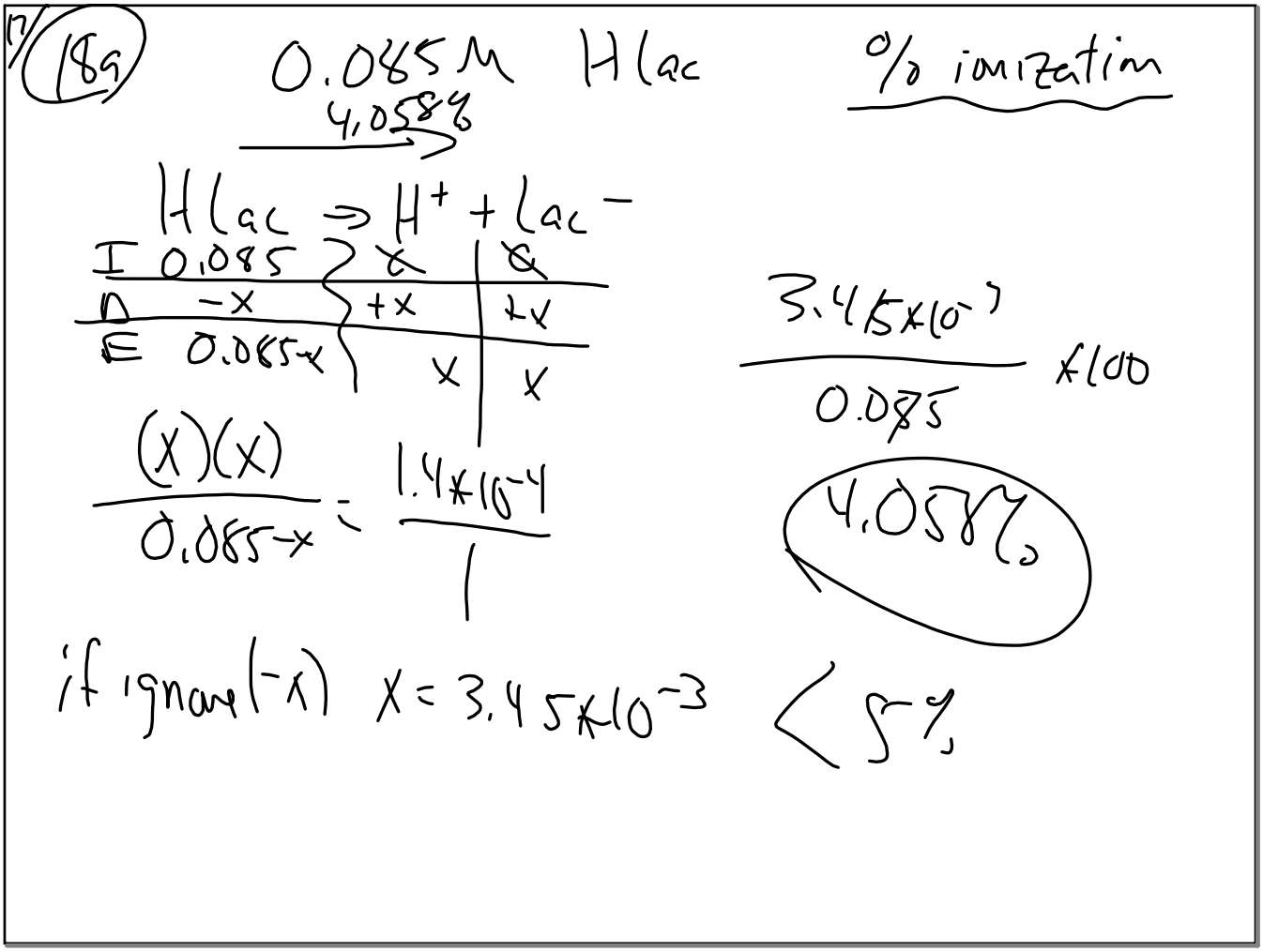
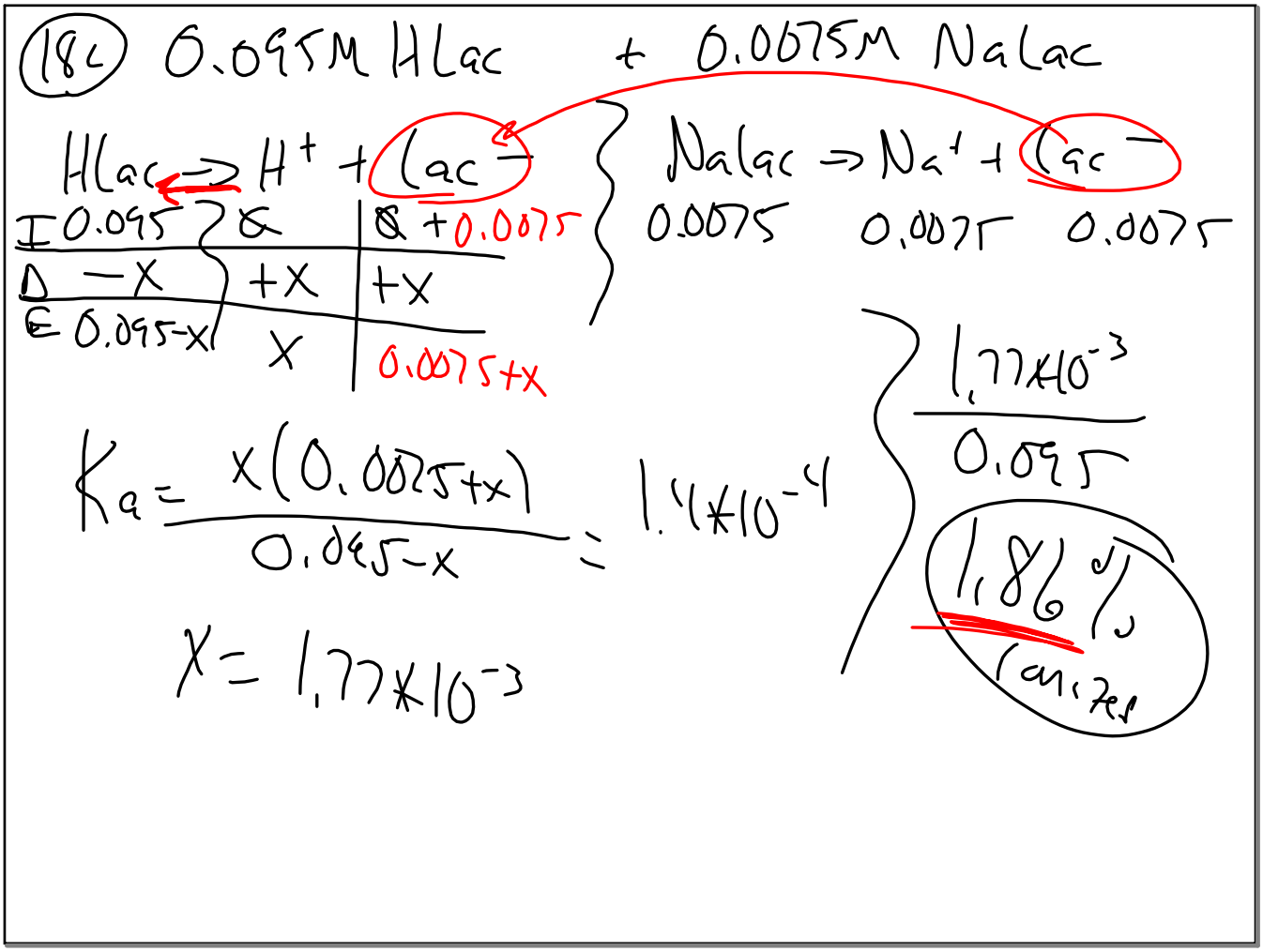

17 16a
0.15M NaFor
Na COMM
0.2 HFor
H COMM
pH=?
Common ion
NaFor → Na+ + For
0.15 0.15 0.15
HFor → H+ + For-
I 0.2 0 0 +0.15
D -x +x +x
E 0.2-x x 0.15+x
Common ion
Ka = x(0.15+x)/(0.2-x) = 1.8×10-4
(if ignore +x and -x) ⇒ x = 2.4×10-4
[H+] = 2.4×10-4
pH = -log
pH = 3.62
Test 2.4×10-4 / 0.2M ×100 = 0.12% ionized. OK


17/16c
125ml 0.05M HF + 50ml 0.1M NaF
common ion
HF → H+ + F-
I 0.036 0 0 + 0.029
Δ −x +x +x
E 0.036−x x 0.029+x
0.029 0.02 0.029
NaF → Na+ + F−
0.1 0.1 0.1
New M
M*l = M*l
(0.05)(125) = M(175)
M=0.036M HF
If give Volumes
Dilution to find new M
Mole= M*l
Moles start = Moles end.
M*l = M*l
0.1 * 50ml = M * 175
0.029M NaF
Ka = x(0.029+x) / (0.036−x) = 6.8*10^-4
x = 8.49*10^-4
(H+)
pH = −log(H+)
pH = 3.07
0.036 *100 = 2.3% ionization
OK to ignore x
< 5%


17) (8g)
0.085 M HLac
4.058%
% ionization
HLac ⇒ H+ + Lac−
I 0.085 | x | x
Δ −x | +x | +x
E 0.085−x | x | x
(x)(x) / 0.085−x = 1.4×10−4 / 1
if ignore (−x) x = 3.45×10−3
3.45×10−3 / 0.085 ×100
4.058%
< 5%


18c) 0.095M HLac + 0.0075M NaLac
HLac ⇌ H+ + Lac−
NaLac → Na+ + Lac−
0.0075 0.0075 0.0075
I 0.095 0 0 +0.0075
Δ −X +X +X
E 0.095−X X 0.0075+X
Ka = x(0.0075+x) / 0.095−x = 1.4×10−4
x = 1.77×10−3
1.77×10−3 / 0.095
1.86 %
(answer)

Buffer

Prevents drastic pH changes

How?

by absorbs excess H^+ or OH^- ions

Mar 8-8:22 AM

17 / 15c + 17

Mar 8-8:24 AM