

a-) $-\log K_a = pK_a$ $pH = pK_a + \log \frac{[Salt]}{[Acid]}$

$pK_a = -\log(1,8 \times 10^{-5})$

$pH = 4,74 + \log \frac{[0,4]}{[0,2]}$

$pK_a = 4,74 //$

$pH = 5,04$

$M = \frac{n}{V}$

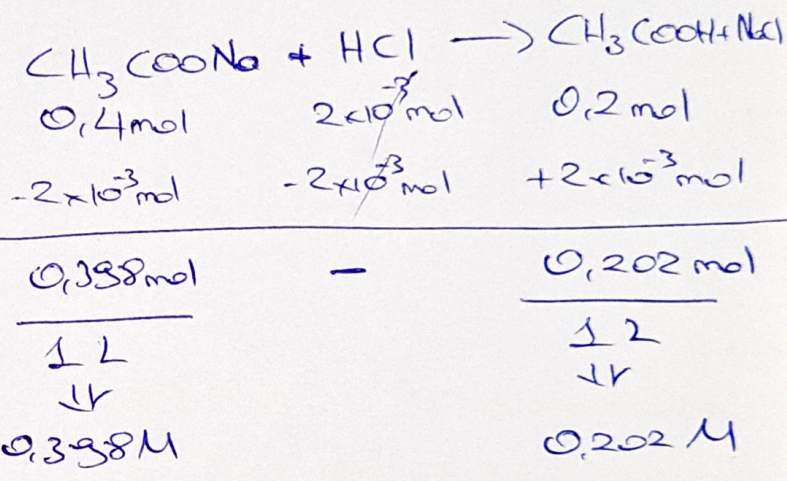
$M_{acetic\ acid} = \frac{0,2}{1}$
 $= 0,2\ M //$

$M_{sodium\ acetate} = \frac{0,4}{1}$
 $= 0,4\ M$

b-) $M_{HCl} = \frac{n}{V}$

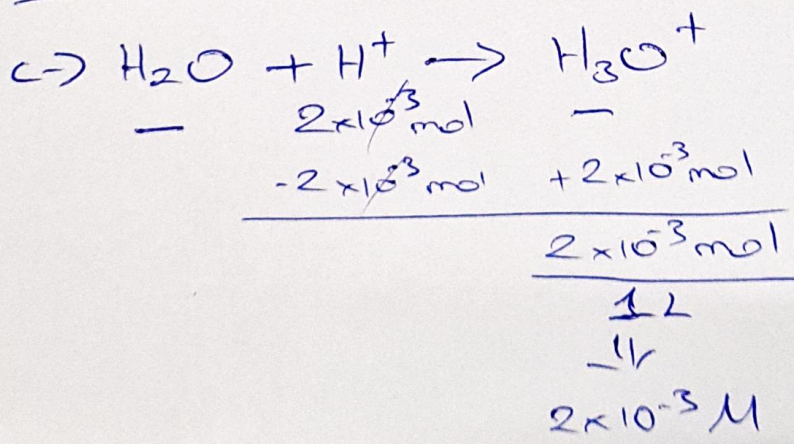
$0,2 = \frac{n}{0,01}$

$n = 2 \times 10^{-3}\ mol //$



$pH = 4,74 + \log \frac{[0,398]}{[0,202]}$

$pH = 5,03$



$pH = -\log [H^+]$
 $= -\log [2 \times 10^{-3}]$

$pH = 2,69$