(3)

Calcolare il volume di NaOH [0,1018]

35,00 ml [0,1330] CH_3COOH

pH = ?

$K_a = (1,75 \cdot 10^{-5})$

$V_{NaOH} = \frac{M \cdot V}{M} = \frac{0,1330 \cdot 0,0035\,l}{0,1018} = \frac{5,26 \cdot 10^{-2}}{0,0526\,l} = 52,6\,ml$

$V_{NaOH} = 52,6\,ml$

$CH_3COOH + OH^- \rightarrow CH_3COO^- + H_2O$

L'unica specie al primo equivalente è

CH_3COO^-

$CH_3COO^- + H_2O \rightleftharpoons CH_3COOH + OH^-$

$K_b = \frac{K_w}{K_a} = 5,71 \cdot 10^{-10}$

$K_b = \frac{[CH_3COOH][OH^-]}{[CH_3COO^-]}$

$n\,CH_3COOH = 0,1330\,mol/l \cdot 0,0035\,l = 0,0053\,mol$

$n\,NaOH = 0,1018\,mol/l \cdot 0,0526\,l = 0,0053\,mol$

$V_{tot} = 8,76 \cdot 10^{-2}\,l \rightarrow 0,0876\,l$

$[CH_3COO^-] = 0,0053\,mol \cdot 0,0876\,l = 4,64 \cdot 10^{-4}$