

H-COOH      100 ml      0,046 g      pH = 2,92

$P_{\text{mol H-COOH}} \rightarrow 2 + 32 + 12 = 46 \text{ g/mol}$

$0,046 \text{ g H-COOH} \cdot \frac{1 \text{ mol}}{46 \text{ g}} = 0,001 \text{ mol de H-COOH}$

$$M = \frac{n}{V} = \frac{0,001 \text{ mol}}{0,1 \text{ L}} = 0,01 \text{ mol/L} \rightarrow C_0$$

CONCENTRACIONES	$\text{H-COOH} + \text{H}_2\text{O} \rightleftharpoons \text{H-COO}^- + \text{H}_3\text{O}^+$			
INICIALES	0,01	-	-	-
EQUILIBRIO	0,01 - x	-	x	x

$$\text{pH} = -\log [\text{H}_3\text{O}^+] \rightarrow 2,92 = -\log x$$

$$x = 10^{-2,92} \rightarrow \boxed{x = 1,2 \cdot 10^{-3} \text{ M}}$$

$$\alpha = \frac{x}{C_0} \rightarrow \alpha = \frac{1,2 \cdot 10^{-3}}{0,01} \rightarrow \boxed{\alpha = 0,12}$$

$$K_a = \frac{[\text{H-COO}^-] \cdot [\text{H}_3\text{O}^+]}{[\text{H-COOH}]} = \frac{x^2}{0,01 - x} \rightarrow \boxed{K_a = 1,64 \cdot 10^{-4}}$$

