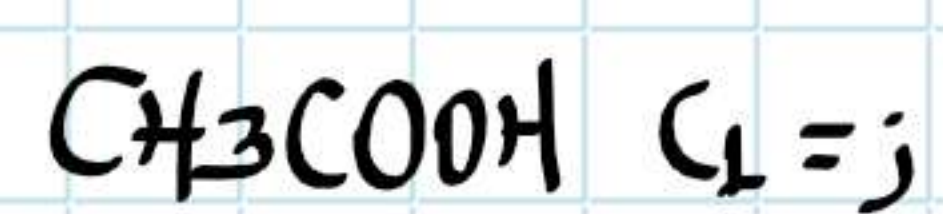


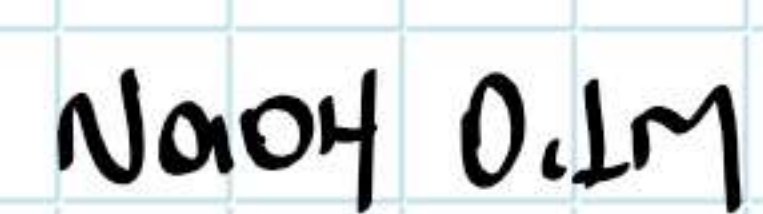
12.15

Δ1



20ml

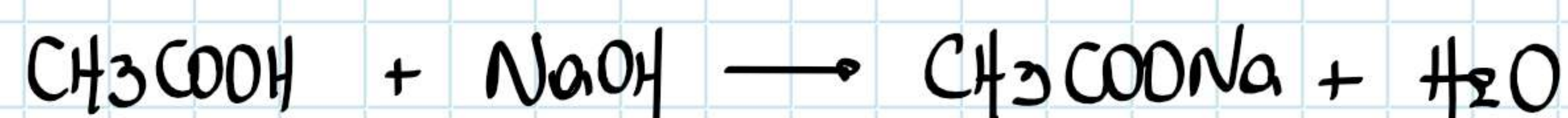
Π.Δ.



\checkmark
 $V_{\text{ισοδ}} = 20\text{ml}$

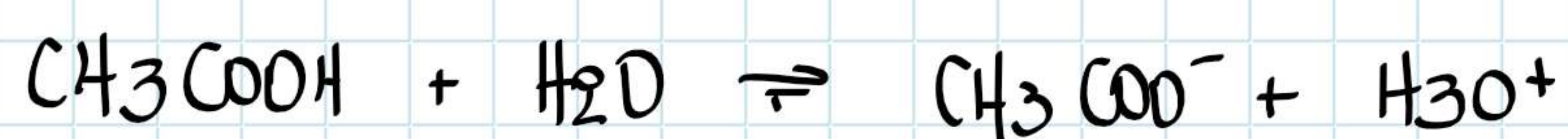
$$n_{\text{NaOH}} = 0.1 \cdot 0.02 = 0.002 \text{ mol}$$

α) κατά την ογκομέτρηση ισχύει:



Στο ισοδ. βυθίο έχουμε: $n_{\text{α}} = n_{\text{β}} \Rightarrow C_{\text{α}} \cdot 0.02 = 0.002 \Rightarrow C_{\text{α}} = 0.1\text{M}$

Στο αρχικό Δ1α:



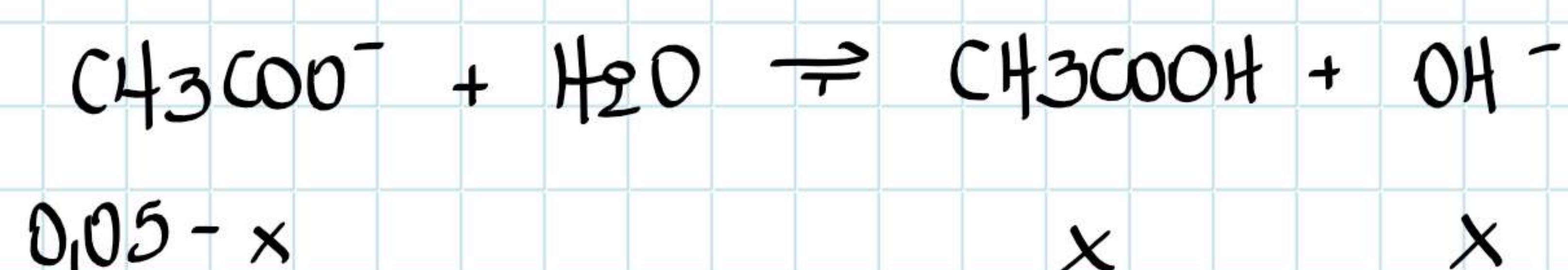
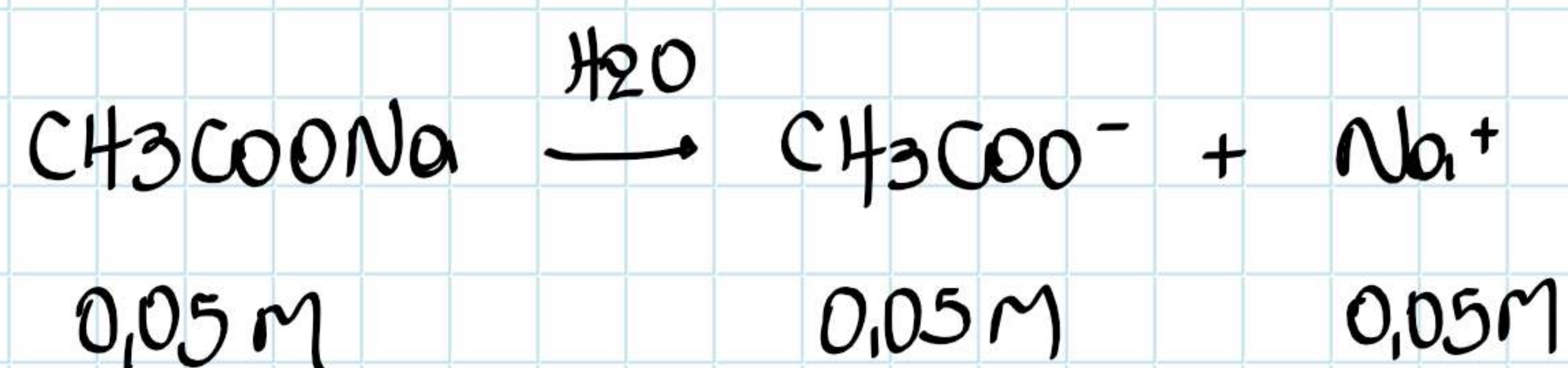
$$0.1 - x \qquad \qquad \qquad x \qquad \qquad x$$

$$K_a = \frac{x^2}{0.1 - x} \approx \frac{x^2}{0.1} \Rightarrow 10^{-5} = \frac{x^2}{0.1} \Rightarrow x = \underline{10^{-3}}$$

$$\text{pH} = 3$$

β) i) Στο ισοδύναμο βυθίο έχουμε 0.002 mol CH_3COONa .

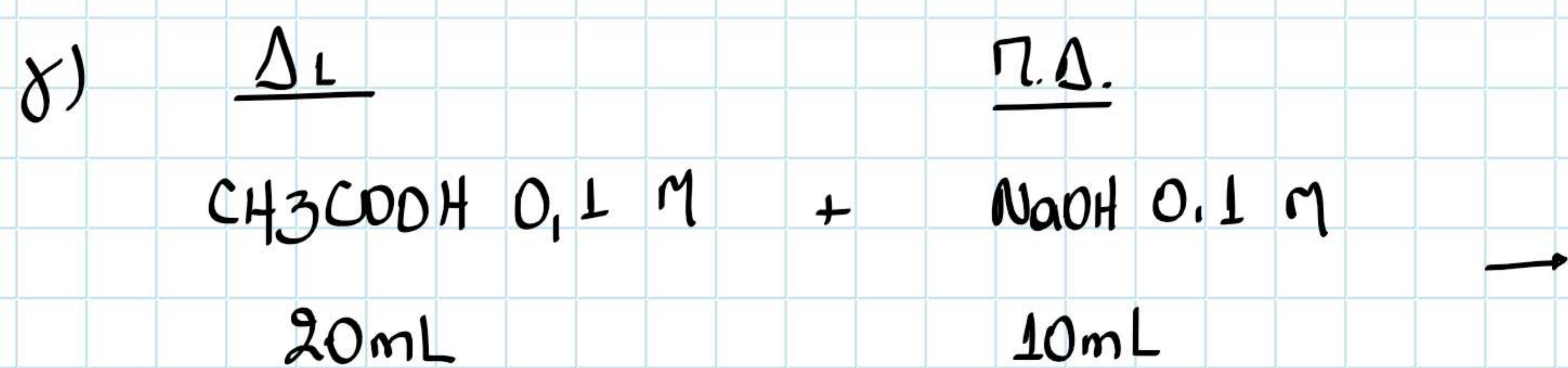
Νέα συγκεντρώση: $C = \frac{0.002}{0.04} = 0.05\text{M}$



$$K_b = \frac{x^2}{0.05 - x} \approx \frac{x^2}{0.05} \Rightarrow 10^{-9} = \frac{x^2}{0.05} \Rightarrow$$

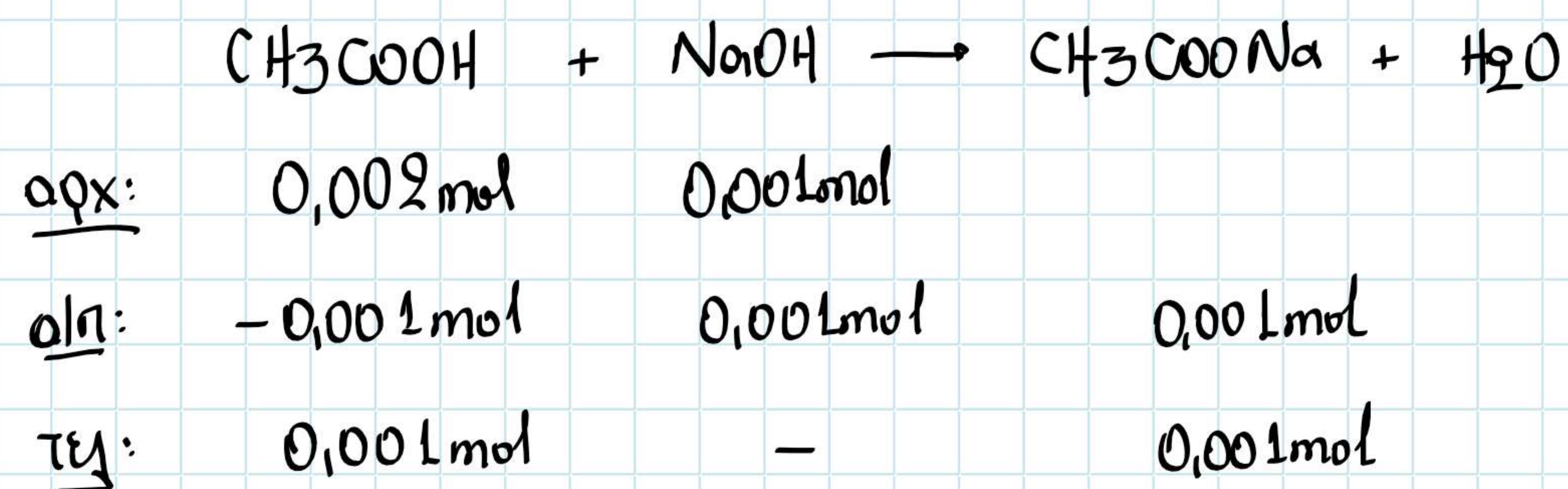
$$\Rightarrow x = \sqrt{50} \cdot 10^{-6} \Rightarrow \text{pOH} = -\log \sqrt{50} \cdot 10^{-6} = -\log \sqrt{50} - \log 10^{-6}$$
$$\Rightarrow \text{pOH} = 6 - 0.85 = 5.15 \text{ άρα } \text{pH} = 8.85 \text{ στους } 25^\circ\text{C}$$

(ii) ο (2)



$$\Delta_1: \quad n_1 = 0,1 \cdot 0,02 = 0,002 \text{ mol}$$

$$\pi \Delta: \quad n_2 = 0,1 \cdot 0,01 = 0,001 \text{ mol}$$



Προκύπτει φυθλ. Δλια

$$\text{pH} = \text{pK}_a + \log \frac{C_B}{C_A} \Rightarrow \text{pH} = 5 + \log \frac{\frac{0,001}{V_1}}{0,001} \Rightarrow \boxed{\text{pH} = 5}$$