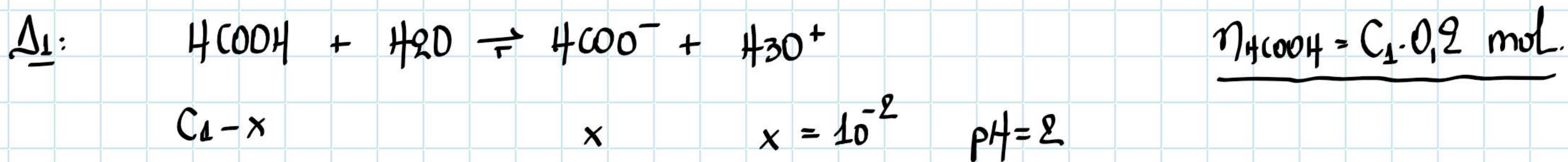
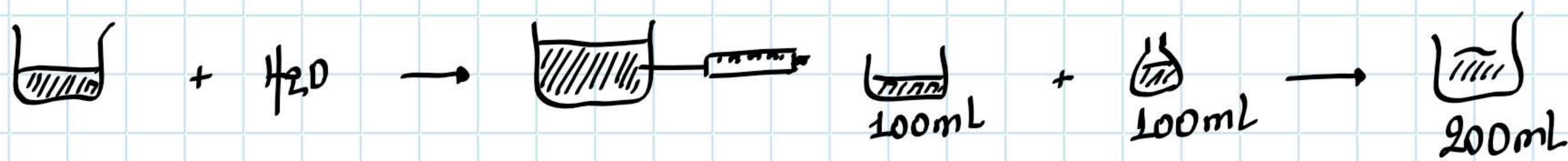
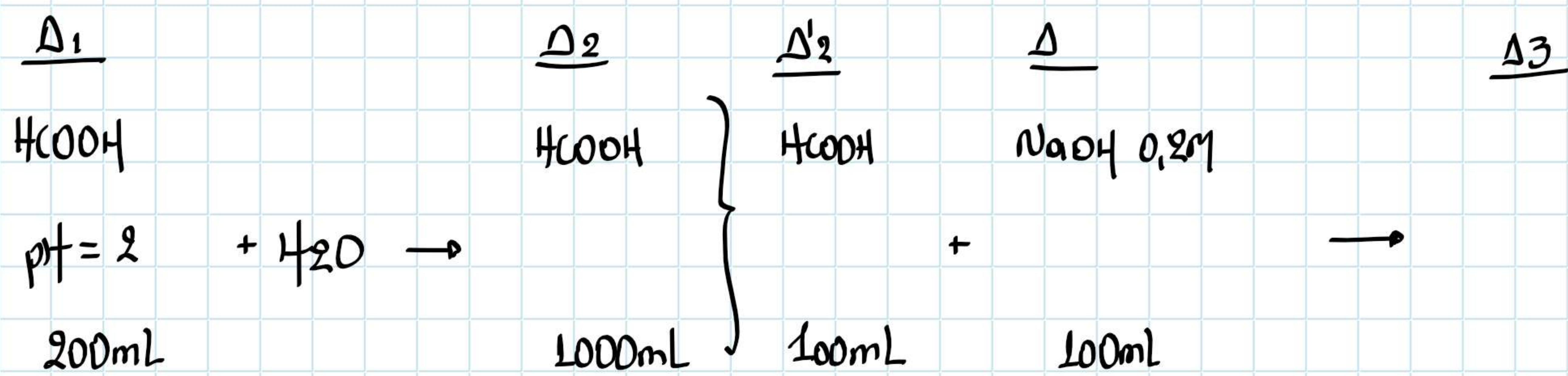
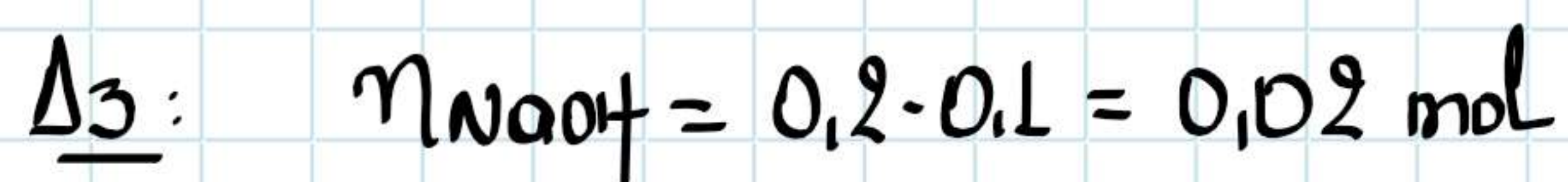
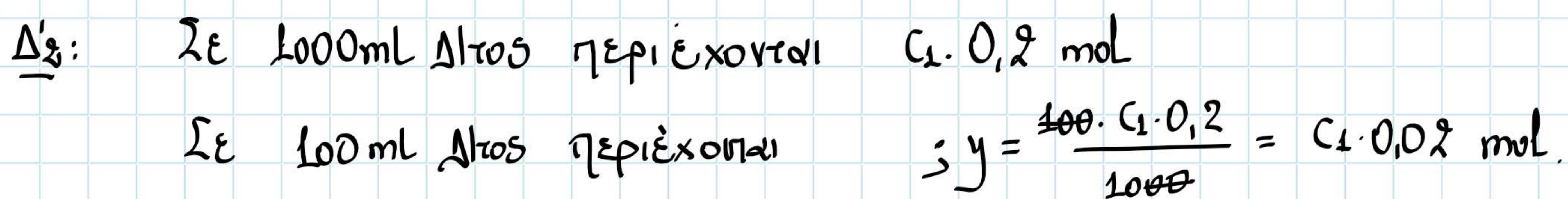


Άσκηση 10.15

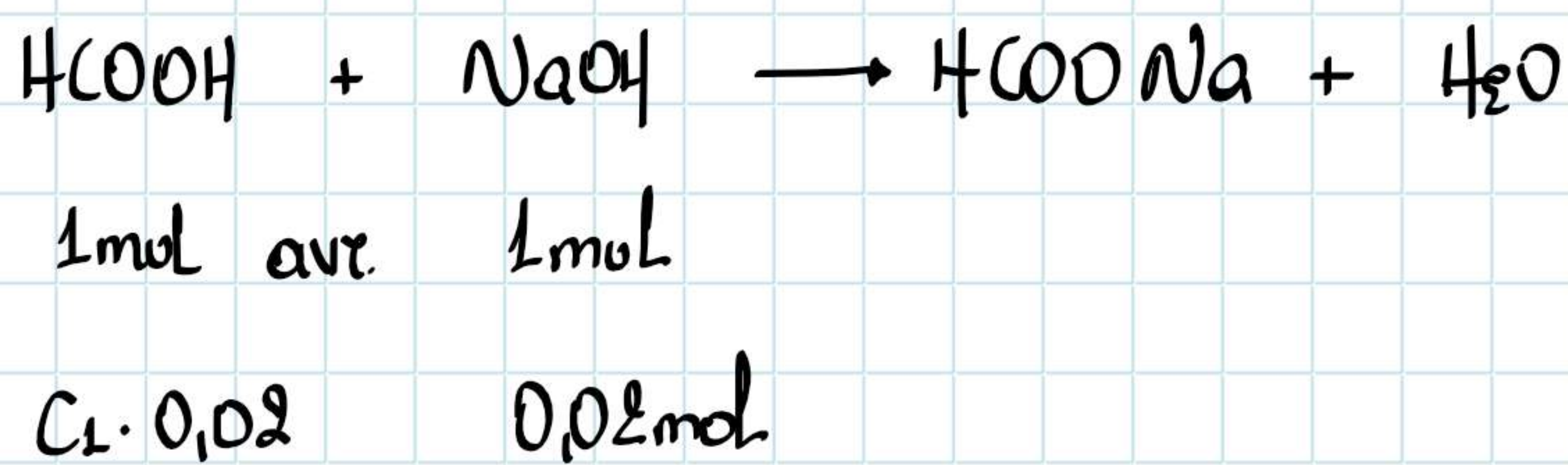


$$K_{\text{aHCOOH}} = \frac{x^2}{C_1 - x} \approx \frac{x^2}{C_1} \Rightarrow K_{\text{aHCOOH}} = \frac{10^{-4}}{C_1} \quad (1)$$

Παρατίθεται ότι $C_1 - x \approx C_1$



Δ_4 : Έχουμε πλήρη εξουδετέρωση του HCOOH από το NaOH :



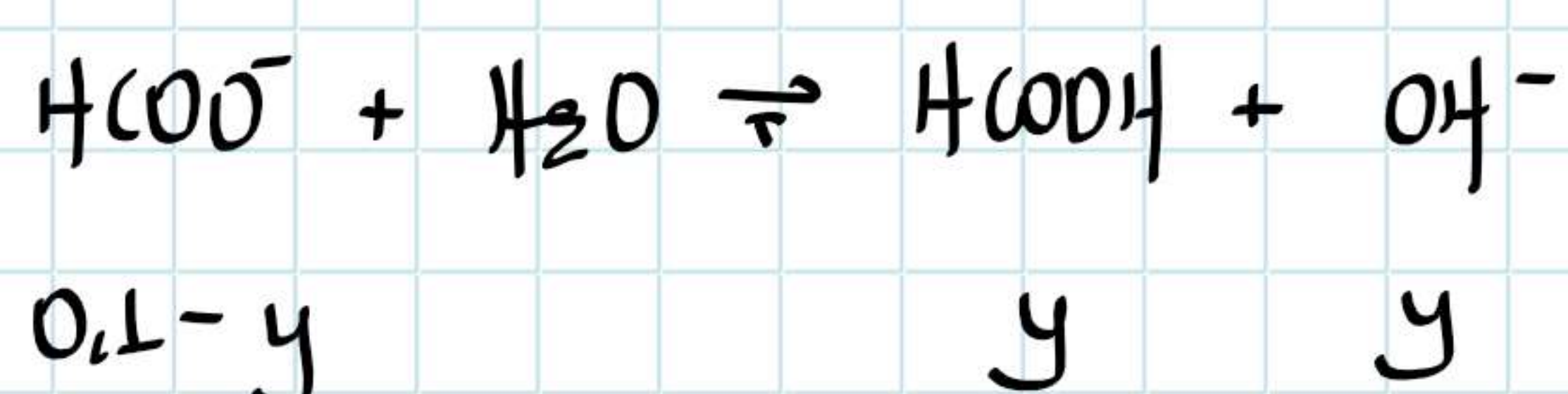
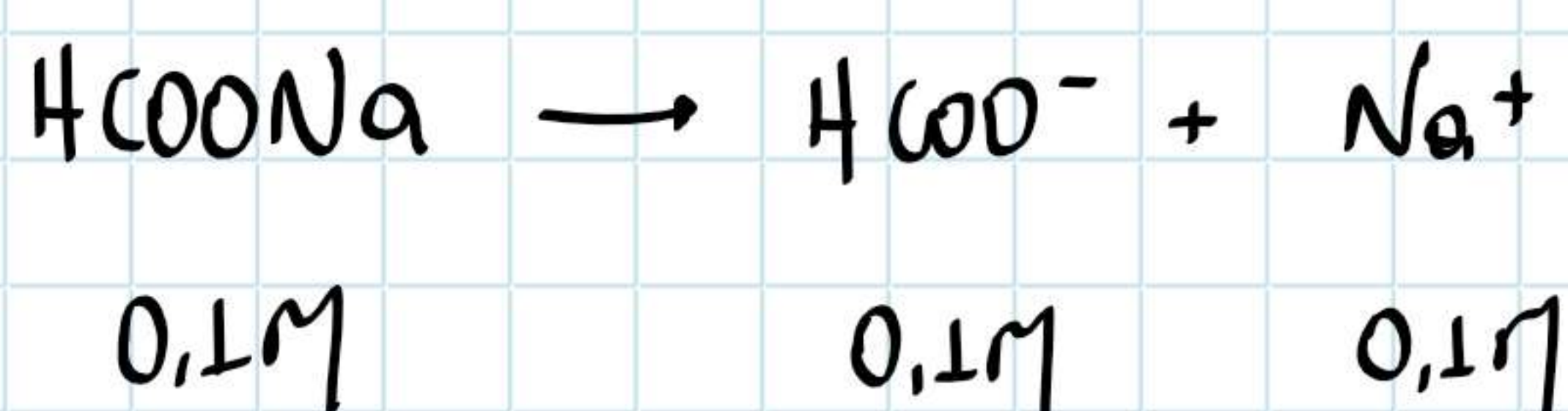
Άρα: $1 \cdot 0,02 = 1 \cdot C_1 \cdot 0,02 \Rightarrow \boxed{C_1 = 1\text{M}}$

στην (1): $K_{\text{a}} = \frac{x^2}{C_1} \Rightarrow K_{\text{a}} = \frac{10^{-4}}{1} = 10^{-4}$

$C_1 \gg x$ άρα η προσέγγιση ΔΕΚΤΗ

β) Στο Δ_4 μετά την εξουδετέρωση έχουμε 0,02mol HCOONa .

Νέα συγκέντρωση: $C = \frac{0,02}{0,2} = 0,1\text{M}$



$$K_{\text{bHCOO}^-} = \frac{y^2}{0,1 - y} \approx \frac{y^2}{0,1} \Rightarrow 10^{-10} = \frac{y^2}{0,1} \Rightarrow y^2 = 10^{-11}$$

$\Rightarrow y = 10^{-5,5} \quad \text{pOH} = 5,5 \quad \text{pH} = 8,5$