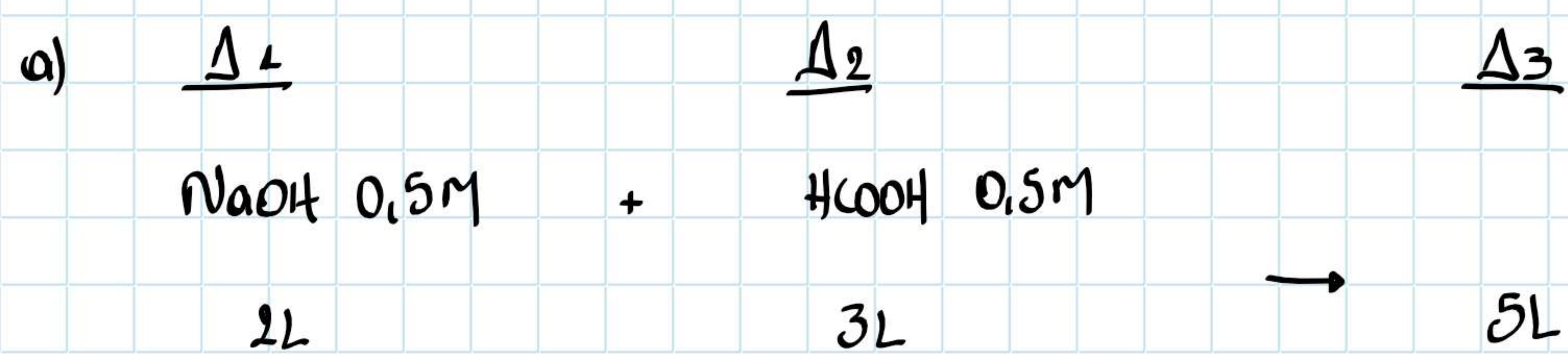


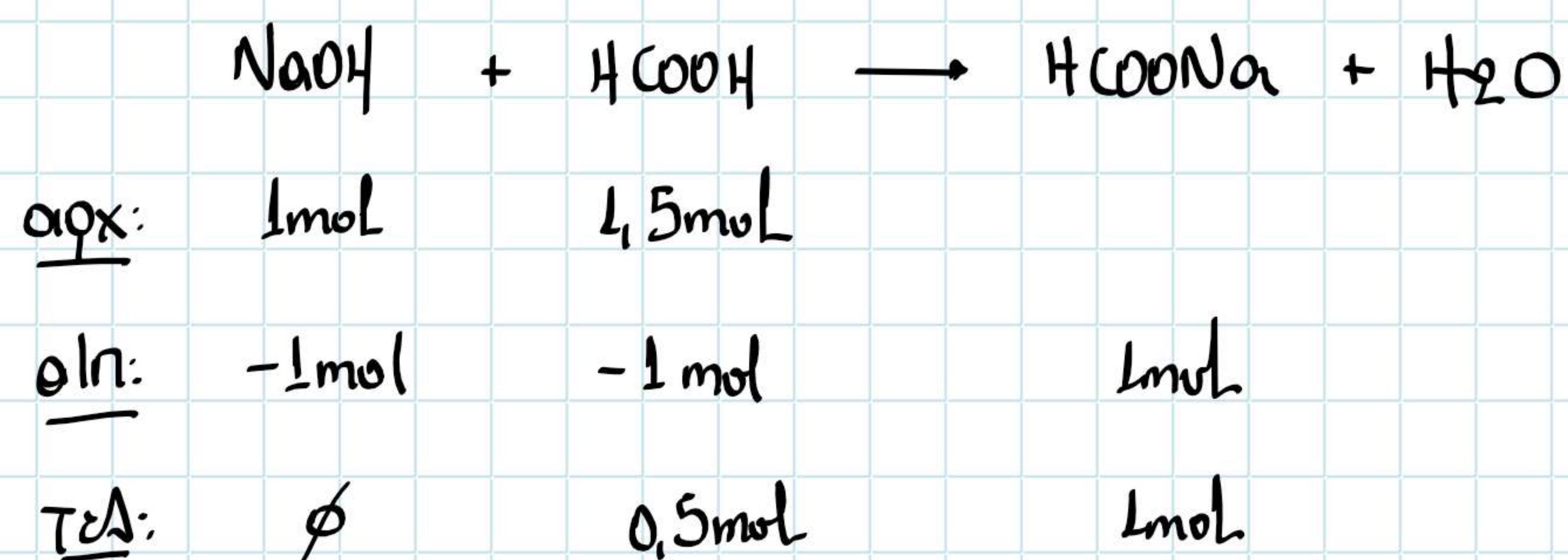
Άσκηση 11.13.



$\Delta_1: \eta_1 = c_1 \cdot V_1 = 0,5 \cdot 2 = 1\text{mol}$

$\Delta_2: \eta_2 = c_2 \cdot V_2 = 0,5 \cdot 3 = 1,5\text{mol}$

Δ_3 : Τα σωστά αντιδρούν μεταξύ τους:

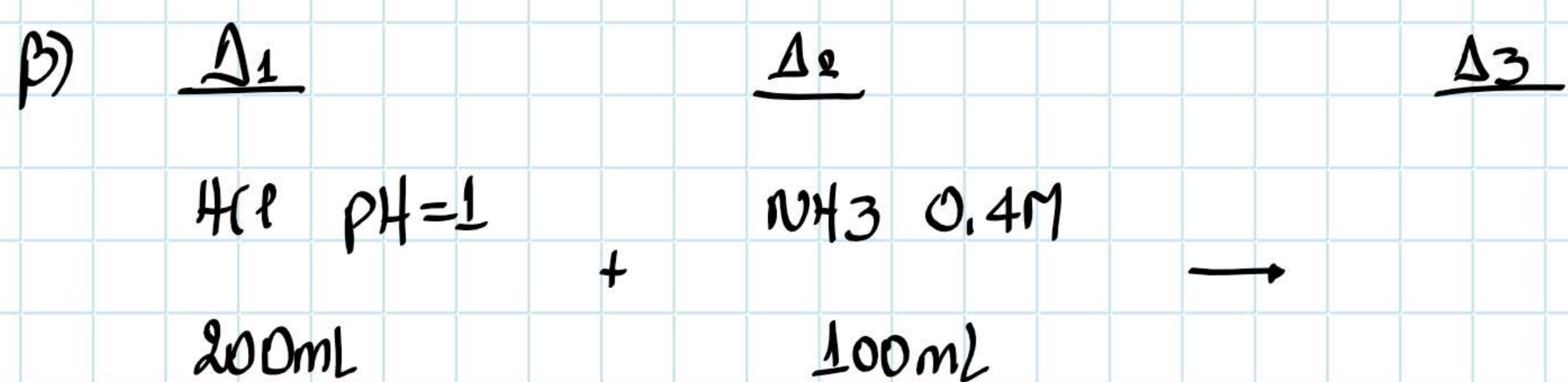


οπότε νέες συγκεντρώσεις: $C_{\text{HCOOH}} = \frac{0,5}{5} = 0,1\text{M}$

$C_{\text{HCOONa}} = \frac{1}{5} = 0,2\text{M}$

$\text{pH}_{\text{αίτος}} = \text{pK}_a + \log \frac{C_{\beta}}{C_{\alpha}} \Rightarrow \text{pH}_{\text{αίτος}} = -\log 2 \cdot 10^{-4} + \log \frac{0,2}{0,1}$

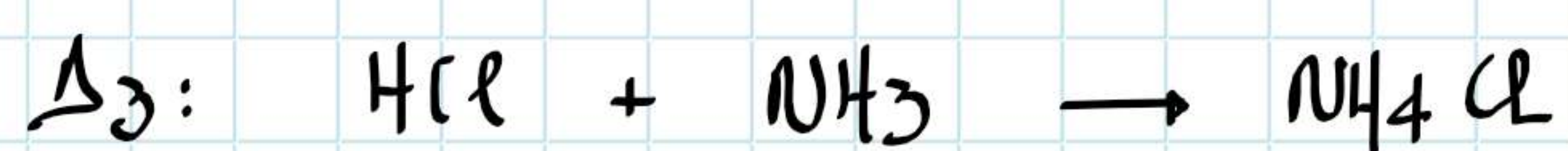
$\Rightarrow \text{pH}_{\text{αίτος}} = -\log 2 + \log 10^{-4} + \log 2 \Rightarrow \text{pH}_{\text{αίτος}} = 4$



$\Delta_1: \text{pH}=1 \Rightarrow [\text{H}_3\text{O}^+] = 0,1\text{M} \Rightarrow C_{\text{HCl}} = 0,1\text{M}$

$\eta_{\text{HCl}} = 0,1 \cdot 0,2 = 0,02\text{mol}$

$\Delta_2: \eta_2 = 0,4 \cdot 0,1 = 0,04\text{mol}$



αρχ: 0,02 0,04

ολη: -0,02 -0,02 0,02

τελ: \emptyset 0,02 0,02

$\text{pOH} = \text{pK}_b + \log \frac{C_{\alpha}}{C_{\beta}} \Rightarrow \text{pOH} = -\log 10^{-5} + \log \frac{0,02}{0,02} \rightarrow 0$

$\text{pOH} = 5$ και στους 25°C $\text{pH} = 9$