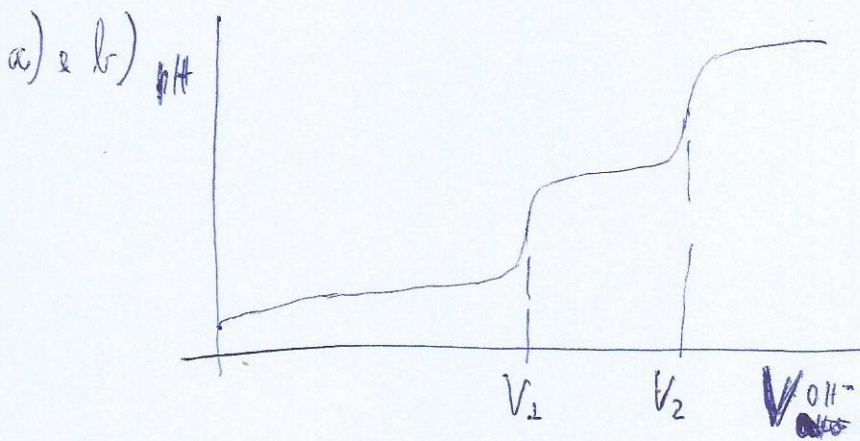


HOMEWORK 4 - GA BARITO



$$\text{Em } V_1 \Rightarrow H_2PO_4^- \therefore pH = \frac{pK_1 + pK_2}{2}$$

$$\text{Em } V_2 \Rightarrow HPO_4^{2-} \therefore pH = \frac{pK_2 + pK_3}{2}$$

c) $V_L = V_{OH^-}$ para $\begin{cases} HCl \rightarrow H_2O \\ H_3PO_4 \rightarrow H_2PO_4^- \end{cases} \therefore V_{OH^-} \text{ p/ } H_3PO_4 \rightarrow H_2PO_4^- = V_{OH^-} \text{ p/ } H_2PO_4^- \rightarrow HPO_4^{2-} = V_2 - V_1$

$$V_{OH^-} \text{ p/ } HCl \rightarrow H_2O = V_1 - (V_2 - V_1)$$

d) $V_1 = 18,75 \text{ mL}$ $V_2 = 25,00 \text{ mL}$

e) $pH_{\text{em } \frac{V_1}{2}} = pK_1$, $pH_{\text{em } V_2 - \frac{V_1}{2}} = pK_2$