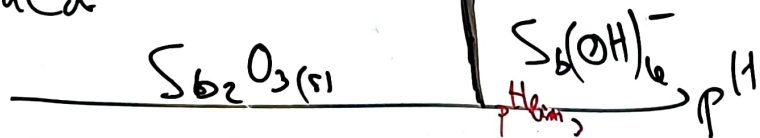
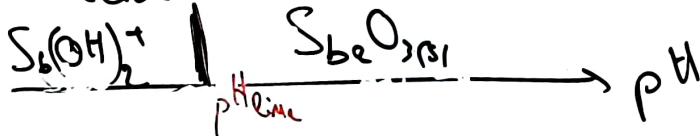
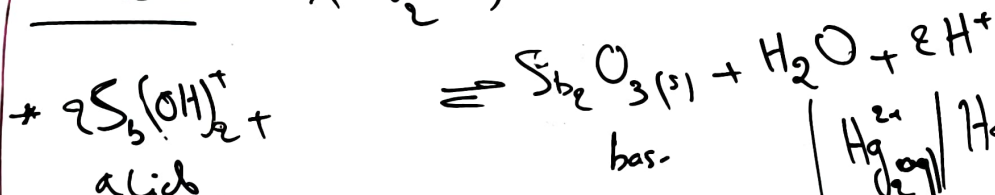
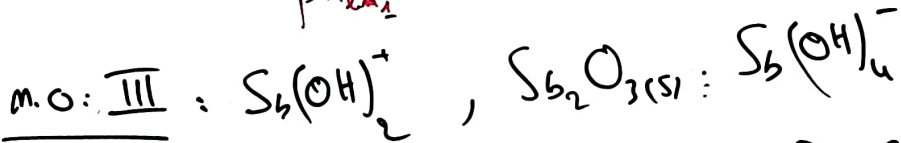
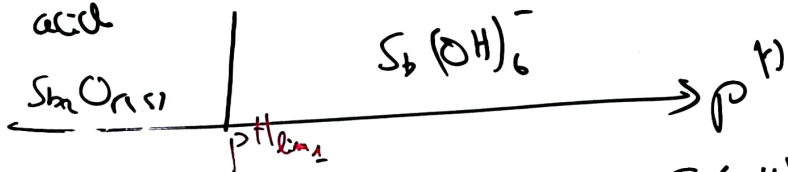
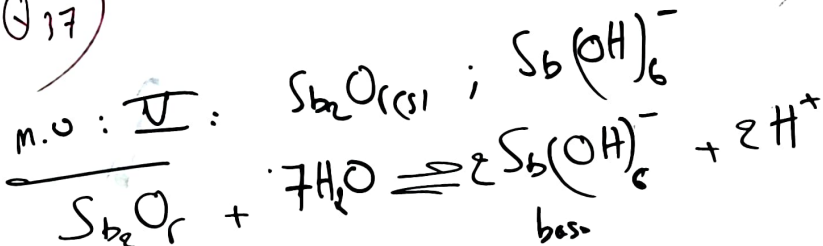


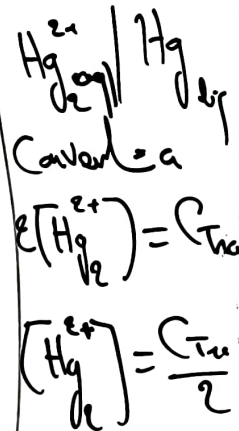
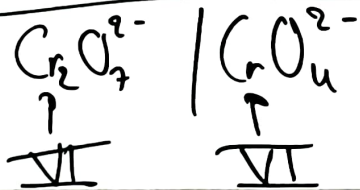
Ex m^o 3 (E-pH): NP2023

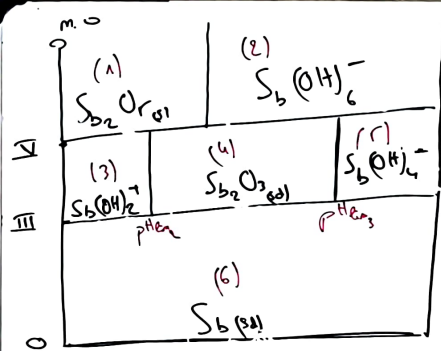
Q36) $\sum m.o = \text{charge totale}$
emité: m.o(Sb)

(Q37)



$Sb(s)$	0
$Sb_2O_3(s)$	III
$Sb_2O_3(s)$	V
$Sb(OH)_2^+$	III
$Sb(OH)_4^-$	III
$Sb(OH)_6^-$	V





(Q₃) Identification

- domaine (1): domaine d'existence ($Sb_2O_3(s)$)
- domaine (2): domaine de prédominance ($Sb(OH)_6^-$)
- domaine (3): domaine de prédominance ($Sb(OH)_2^+$)
- domaine (4): domaine d'existence ($Sb_2O_3(s)$)
- domaine (5): domaine de prédominance ($Sb(OH)_4^-$)
- domaine (6): domaine d'existence (Sb)

(Q₄) dte fonction ① / ②
 $Sb_2O_3(s) / Sb(OH)_6^-$
 $Sb_2O_3(s) + 7H_2O \rightleftharpoons 2Sb(OH)_6^- + 2H^+$
 $2pH = 8,3 + 2 \log [Sb(OH)_6^-]$
 Convention selon dte fonction ① / ②
 $pH = pHe_{2,1} = 2,1$

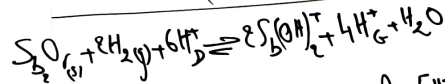
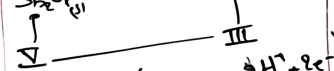
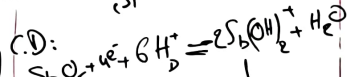
$$[Sb(OH)_6^-] = C_{Tne}$$

$$2pHe_{2,1} = 8,3 + 2 \log C_{Tne}$$

$$C_{Tne} = 10^{\frac{(2pHe_{2,1} - 8,3)}{2}}$$

$$C_{Tne} = 10^{-2} \text{ mol.l}^{-1}$$

(Q₅) dte fonction ① / ③:
 $Sb_2O_3(s) / Sb(OH)_2^+$



$$E_{①/③}^{(NIE.S.H)} = E_{①/③}^{(NIE.S.H)} + \frac{0,06}{4} \log \frac{(H^+)_D}{[Sb(OH)_2^+]^2}$$

$$E_{①/③}^{(NIE.S.H)} = E_{①/③}^{(NIE.S.H)} - 0,03 \log C_{Tne} - 0,09 pH$$

$$E_{Sb_2O_3 / Sb(OH)_2^+}^{(NIE.S.H)} = E_{(Sb_2O_3) / Sb(OH)_2^+}^{(NIE.S.H)} - 0,03 \log C_{Tne} - 0,09 pH$$

Convention selon dte fonction ① / ③
 $[Sb(OH)_2^+] = C_{Tne}$

Ex m 3 (E-pH): NP2023 (Q17)

(Qu2) Diagrama de diagrama.

$$E_{(pH=0)} = 0,74$$

$$\text{da } 0,74 = E_{(NIE.S.H)}^{\ominus} - 0,03 \log 10^{-2}$$

$$Sb_2O_3 / Sb(OH)_2^+$$

$$E_{(NIE.S.H)}^{\ominus} = 0,74 + 0,03 \log 10^{-2}$$

$$Sb_2O_3 / Sb(OH)_2^+$$

$$E_{(NIE.S.H)} = 0,68$$

$$Sb_2O_3 / Sb(OH)_2^+$$

(Qu3) de function (4) (5): $Sb_2O_3(s) / Sb(OH)_4^-$

$$Sb_2O_3(s) + 7H_2O \rightleftharpoons 2Sb(OH)_4^- + 2H^+$$

$$K^{\ominus} = [Sb(OH)_4^-]^2 [H^+]^2$$

Convenia ser de function (4) (5)

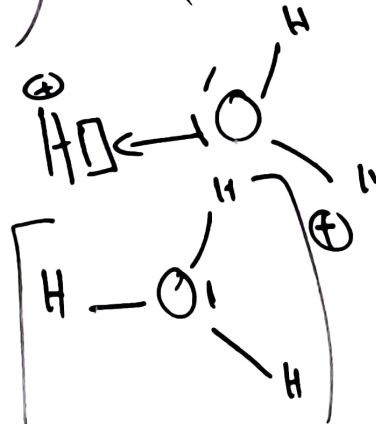
$$[Sb(OH)_4^-] = C_{T.N.}$$

$$pH = pK_3 = 9,87$$

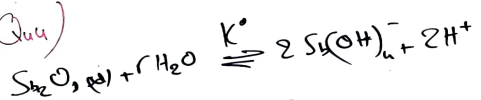
$$K^{\ominus} = (C_{T.N.} 10^{-pK_3})^2 = (10^{-2} \cdot 10^{-9,87})^2$$

$$K_{(299)}^{\ominus} = 10^{-23,7}$$

$$pK^{\ominus} = 23,7$$



Qu4)



$$\Delta_n G^\circ(CT) = -RT \ln K^\circ(r)$$

$$\Delta_n G^\circ(CT) = -R(298) \ln 10^{-23,7}$$

$$R = 8,314 \text{ J} \cdot \text{K}^{-1} \cdot \text{mol}^{-1}$$

$$\Delta_n G^\circ(CT) = -8,314(298) \ln 10^{-23,7}$$

$$\Delta_n G^\circ(CT) = 137,2 \text{ kJ mol}^{-1}$$

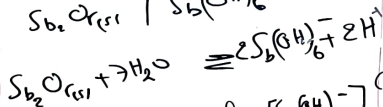
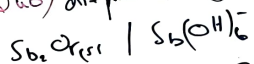
$$\Delta_n G^\circ(CT) = 2 \mu_{Sb(OH)_6^-}^\circ + 2 \mu_{H^+}^\circ - \left(\mu_{Sb_2O_3}^\circ + r \mu_{H_2O}^\circ \right)$$

$$\mu_{Sb(OH)_6^-}^\circ = \frac{\Delta_n G^\circ(CT) + \mu_{Sb_2O_3}^\circ + r \mu_{H_2O}^\circ}{2}$$

$$= -910,31 \text{ kJ mol}^{-1}$$

Qu5)

Qu5) dte frankie 1) 2)



$$2 pH = 8,3 + 2 \log [Sb(OH)_6^-]$$

Convenția similară dte frankie 1) 2)

$$pH = pH_{lim} = 2,17$$

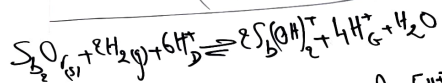
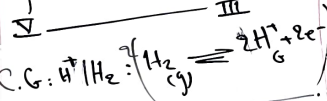
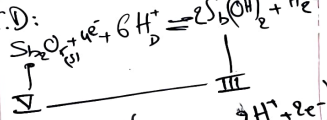
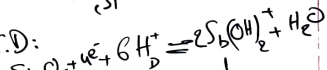
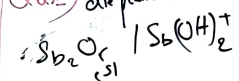
$$[Sb(OH)_6^-] = C_{Tnc}$$

$$2 pH_{lim} = 8,3 + 2 \log C_{Tnc}$$

$$C_{Tnc} = 10^{\frac{(2 pH_{lim} - 8,3)}{2}}$$

$$C_{Tnc} = 10^{-2} \text{ mol} \cdot \text{L}^{-1}$$

Qu5) dte frankie 1) 3):



$$E_{(1)(3)}^{(NIE.S.H)} = E_{(1)(2)}^{(NIE.S.H)} + \frac{0,06}{4} \log \frac{(H^+)_D^6}{[Sb(OH)_2^+]^2}$$

$$E_{(1)(3)}^{(NIE.S.H)} = E_{(1)(2)}^{(NIE.S.H)} - 0,03 \log C_{Tnc} - 0,09 pH$$

$$E_{Sb_2O_3 / Sb(OH)_2^+}^{(NIE.S.H)} = E_{(Sb_2O_3) / Sb(OH)_2^+}^{(NIE.S.H)} - 0,03 \log C_{Tnc} - 0,09 pH$$

Convenția similară dte frankie 1) 3)

$$[Sb(OH)_2^+] = C_{Tnc}$$