

$H_2PO_4^- / HPO_4^{2-}$

$K_a = 10^{-pK_a} = 10^{-7,21} = 6,166 \cdot 10^{-8}$

$K_b = \frac{K_w}{K_a} = \frac{1 \cdot 10^{-14}}{6,166 \cdot 10^{-8}} = 1,622 \cdot 10^{-7}$

$pK_b = -\log K_b = -\log 1,622 \cdot 10^{-7} = 6,79$

+ count $\boxed{pK_b = 14 - pK_a}$

H_3PO_4 0,05% en masse

$m = 0,05g \quad \rho = 1g/mL$

$\downarrow M = 98g/mol \quad \downarrow \rho_s = 1g/mL$

$n = 5,102 \cdot 10^{-4}mol \quad V_s = 100mL$

$\downarrow N_s = 0,1L$

$\downarrow C_A = 5,102 \cdot 10^{-3}M$

$pH_{\text{acidifiable}} = \frac{1}{2} (pK_a - \log C_A) = \frac{1}{2} (2,12 - \log 5,102 \cdot 10^{-3})$

$= 2,206$

$pK_a = 2,12$: assez grand

donc H_3O^+ pas négligeable par rapport à C_A

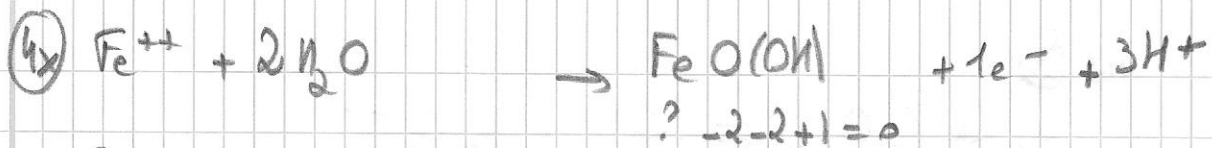
$K_a = \frac{[H_2PO_4^-][H_3O^+]}{[H_3PO_4]} = \frac{[H_3O^+]^2}{C - [H_3O^+]}$

$K_a \cdot C - K_a [H_3O^+] = [H_3O^+]^2$

$[H_3O^+]^2 + 10^{-2,12} \cdot [H_3O^+] + 10^{-2,12} \cdot 5,102 \cdot 10^{-3} = 0$

$+ 3,87 \cdot 10^{-5}$

à résoudre



(+2)

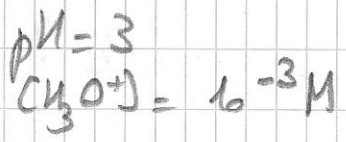
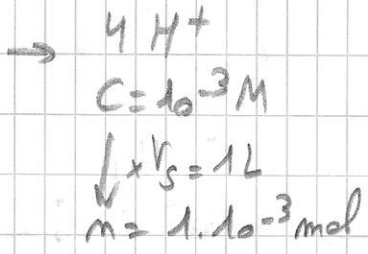
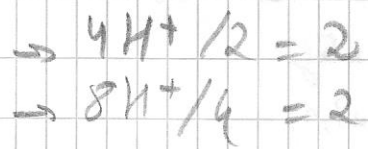
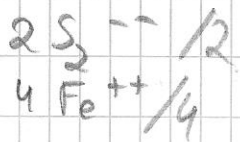
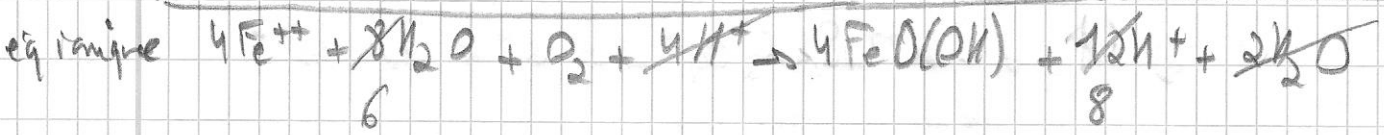
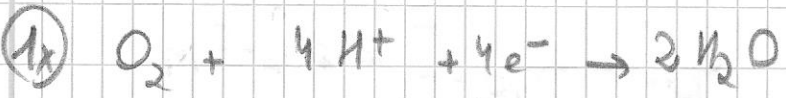
(+3)

$-1e^-$ OXYDATION

$\boxed{+2}$

$\boxed{-1}$

manque 3+



$$2,5 \cdot 10^{-4}$$

$$- 1,25 \cdot 10^{-4}$$

0

$$+ 4 \cdot 2,5 \cdot 10^{-4}$$

1 \cdot 10^{-3}

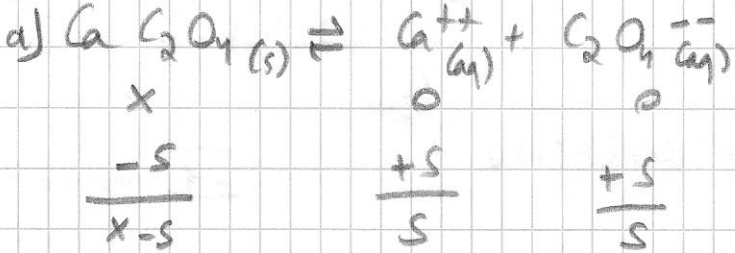
$$n_{\text{FeS}_2} = 2,5 \cdot 10^{-4} \text{mol}$$

↓

$$M = 119,95 \text{g/mol}$$

$$m = 0,03 \text{g}$$

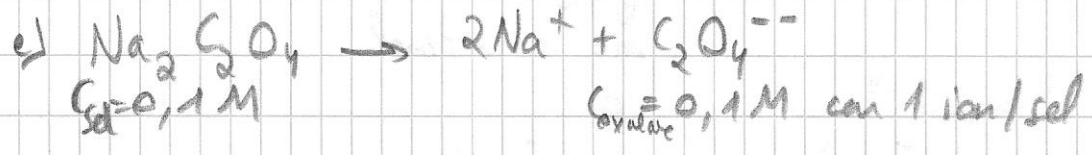
③



b) $C_{\text{Ca}^{++}} = C_{\text{C}_2\text{O}_4^{--}} = 6 \cdot 10^{-5} \text{ M}$

c) $K_{ps} = [\text{Ca}^{++}] \cdot [\text{C}_2\text{O}_4^{--}] = s^2 = 3,6 \cdot 10^{-9}$
 pas de solide dans la constante d'équilibre

d) $m = 0,65 \text{ g}$
 $M = 128,1 \text{ g/mol}$
 $n = 5,074 \cdot 10^{-3} \text{ mol}$
 $\downarrow V_s ?$
 $C_{\text{max}} = 6 \cdot 10^{-5} \text{ M}$
 $C = \frac{m}{V_s}$
 $V_s = \frac{m}{C} = \frac{5,074 \cdot 10^{-3}}{6 \cdot 10^{-5}} = 84,57 \text{ L}$



$K_{ps} = \text{constante} = [\text{Ca}^{++}] [\text{C}_2\text{O}_4^{--}]$
 $x \cdot (\cancel{x} + 0,1) = 3,6 \cdot 10^{-9}$
 négation par rapport à 0,1
 $0,1 \cdot x = 3,6 \cdot 10^{-9}$

$[\text{Ca}^{++}]$ venant du CaC_2O_4 $x = \frac{3,6 \cdot 10^{-9}}{0,1} = 3,6 \cdot 10^{-8} \text{ M} = C_{\text{max}} \text{CaC}_2\text{O}_4$
 $\downarrow x M = 128,1 \text{ g/mol}$
 $\gamma_{\text{max}} = 4,6116 \cdot 10^{-6} \text{ g/L}$

f) si un des produits \rightarrow le syil veut \downarrow sa concentration
 déplacement de l'équilibre vers la gauche, vers le sel solide



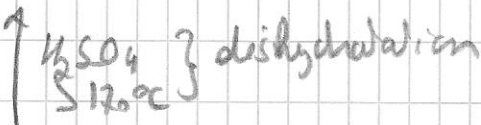
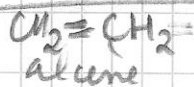
à pH=2 H_3O^+ ↑ le syst. rev. se consomme
déplacement vers droite

SO_4^{2-} diminue en un temps

le syst. rev. en refait → équilibre de solubilité
déplacé vers les ions à pH=2

donc inverse à pH=7 de oxalate - soluble à pH=7 quel

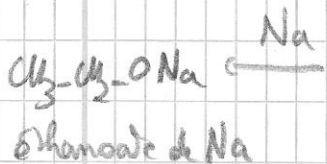
④



alcool

M = 46 g/mol

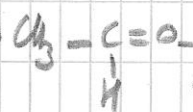
C 52,1% H 13,2%
24 g/mol 6 g/mol
2M_C 6M_H



Na



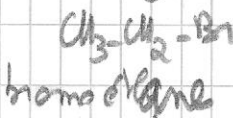
oxyd.



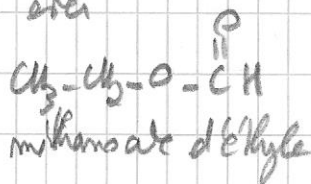
oxyd.



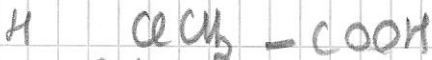
substitution H/Br



+ acide
ester



vii) E



électronégatif
← e⁻

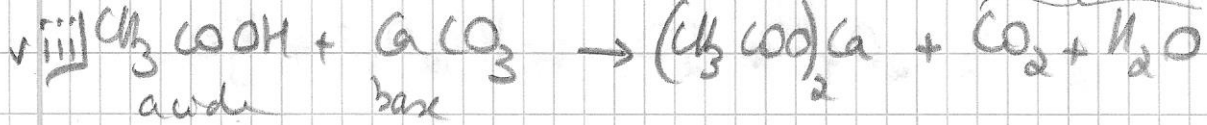
H⁺ partira mieux

K_a + grand
pK_a + petit

viii) A CH_3-CH_2-OH polaire → points H 1063 ↑ 78°C

E CH_3-COOH polaire + grand points H 1180 + de points H

$CH_2=CH_2$ pas polaire points H 1063 ↓ pas de points H



(x) CH_3COOH + soluble dans l'eau que $\text{C}_{17}\text{H}_{35}\text{COOH}$

zone polaire + grande en proportion

zone grasse non polaire hydrophobe