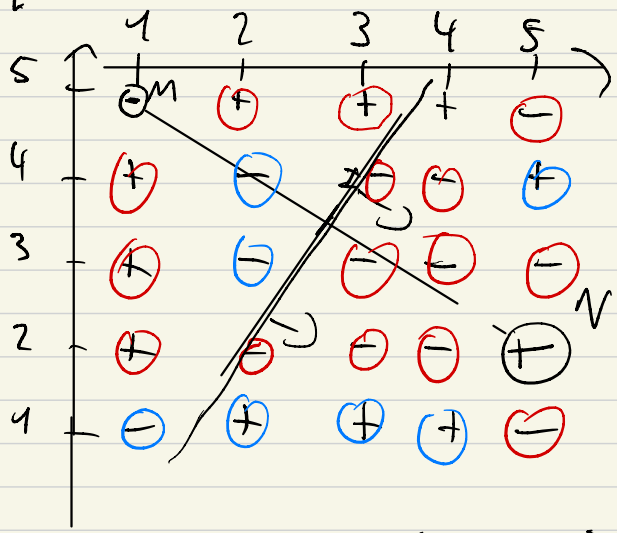
Sujet 2022:

Partie A:

1.



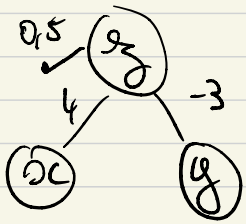
Δ médiatrice à $[M,N]$ $\quad \overrightarrow{MN} = (4,-3)$ $\quad X=(x,y)$

Droite orthogonale $[M,N]$ $\quad \vec{X} \perp \overrightarrow{MN}$

I milieu de $[M,N]$ $\quad 0 = \vec{X} \cdot \overrightarrow{MN}$ $\quad 4x-3y=0$

Si $x \nearrow 4$ $\quad y \searrow 3$

Droite: $4x - 3y + 1,5 = 0$

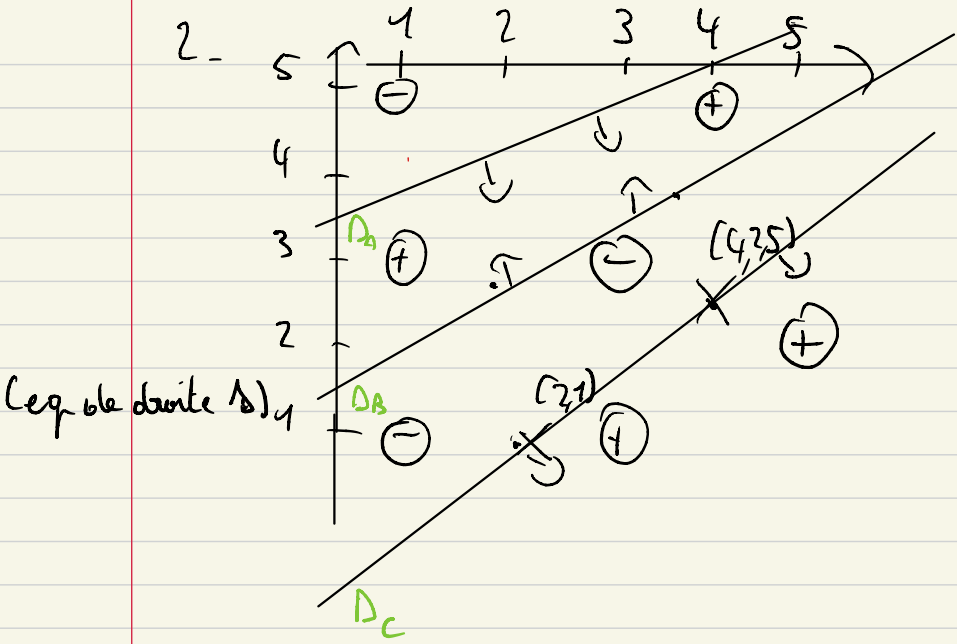


$I = (3 ; 3,5)$

Demi-plan: $4x - 3y + 1,5 \geq 0$

15 erreurs

2 -

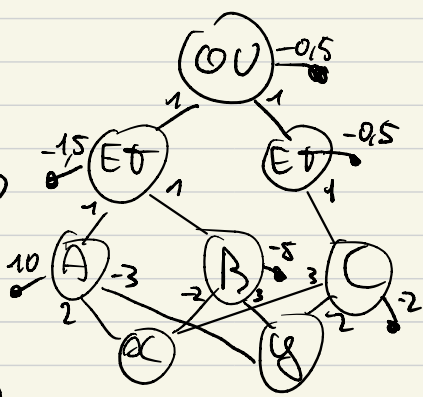


D_A : $y = \frac{2}{3}(x-1) + 4$

P_A : $2x - 3y + 10 > 0$

D_B : $y = \frac{2}{3}(x-2) + 3$

P_B : $-2x + 3y - 5 > 0$



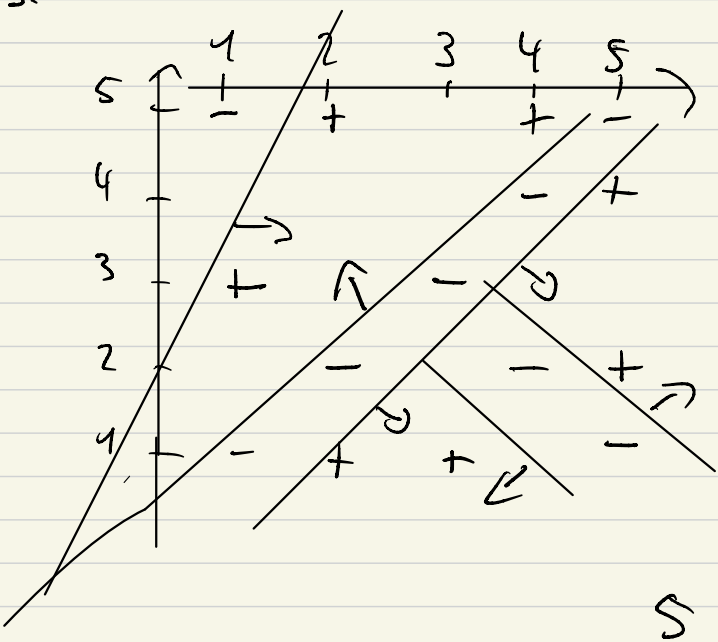
D_C : $y = \frac{3}{4}(x-2) + 1$

P_C : $-4y + 3x - 2 > 0$

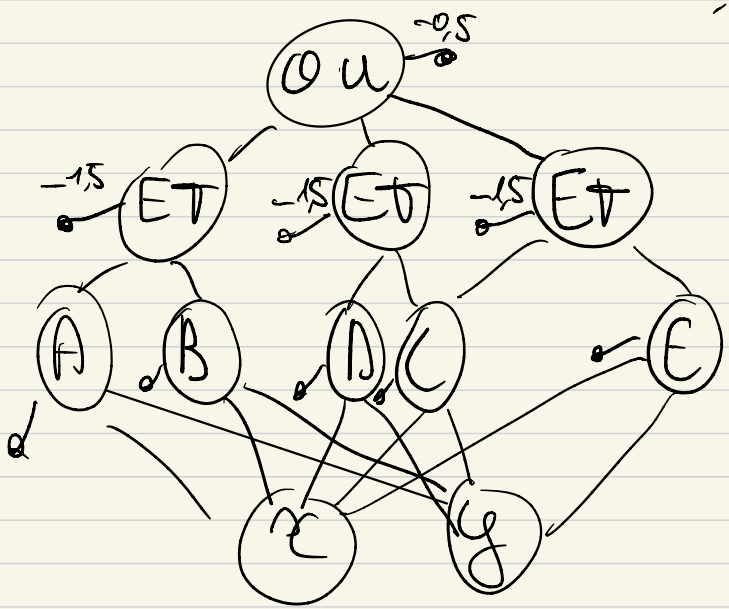
Erreur $= \underbrace{8}_{\text{norm}} + \underbrace{1,5}_{\text{sep}} = 9,5$

erreur sur séparation = 0,5
erreur normale = 1

3.

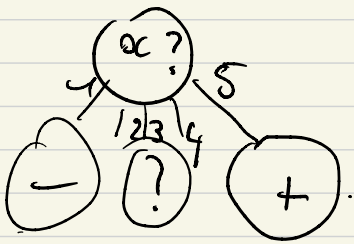


5 5 erreurs



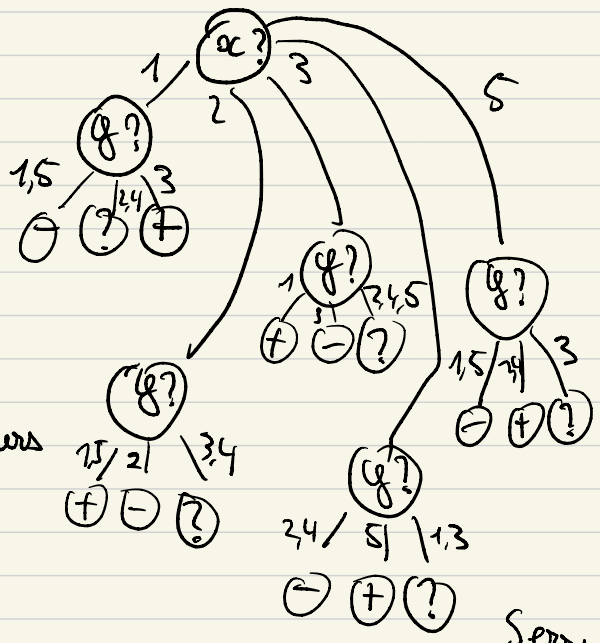
Partie B :

Ensemble A :



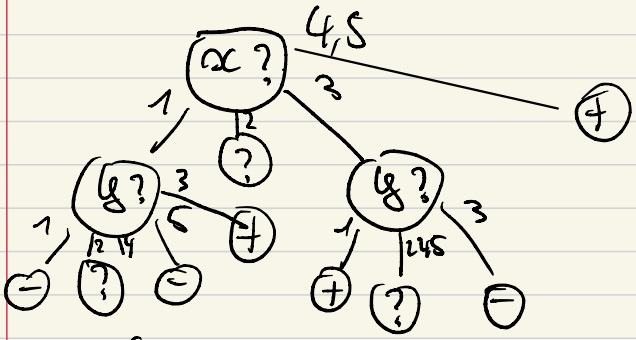
$6 + \frac{15}{2} = 13,5$ erreurs

Ensemble C :



5 erreurs

Ensemble B



$6 + \frac{10}{2} = 11$ erreurs

? : demi-erreur

Partie C:

1. 11 positif 14 negatif

$P(+) = \frac{11}{25}$ $P(-) = \frac{14}{25}$

$P_{err} = \frac{11}{25}$ RB a priori → ⊖

2. x_C connu

$P(+ | x_C = 1) = \frac{3}{5}$ ⊕

$P(+ | x_C = \{2,3,4\}) = \frac{6}{15}$ ⊖

$P(+ | x_C = 5) = \frac{2}{5}$ ⊖

10 erreurs

$P_{erreurs} = \frac{10}{25}$

3. x_C, y connus.