

# Feuille 5 : Programmation Linéaire en nombres entiers

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## 1 Exercice 1

$$\begin{cases} \max F(x) = 6x_1 + 9x_2 + 8x_3 + 4x_4 \\ e^1 = 8 - 4x_1 - 6x_2 - 5x_3 - 4x_4 \geq 0 \\ e^2 = 7 - 3x_1 - 6x_2 - 4x_3 - 3x_4 \geq 0 \end{cases}$$

- Estimation principale :  $b_0 = 6 + 9 + 8 + 4 = 27$
- Estimation secondaires :  $\$(e_k^1, e_k^2)$ 
  - $e_0^1 = 8$
  - $e_0^2 = 7$

- Calcul de F (solution réalisable particulière)

- $\boxed{x_2 = 1}$  (2,1)

- $x_3 = 1 \Rightarrow$  impossible

- $\Rightarrow \boxed{x_3 = 0}$

- $x_1 = 1$  impossible

- $\Rightarrow \boxed{x_1 = 0}$

- $x_4 = 1$  impossible

- $\boxed{x_4 = 0}$   $\overline{F}_1 = 9$

	1	2	3	4
$c_j/a_{1j}$	3/2	3/2	8/5	1
$c_j/a_{2j}$	2	3/2	2	4/3
$\sum_i c_j/a_{ij}$	3,5	3	18/5	1,75

- $\boxed{x_3 = 1}$  (3,3)

- $x_1 = 1$  impossible  $\Rightarrow x_1 = 0$

- $x_2 = 1$  impossible  $\boxed{x_2 = 0}$

- $x_4 = 1$  impossible  $\Rightarrow x_4 = 0$

$$\overline{F}_2 = 8$$

$$\boxed{\overline{F} = \max(\overline{F}_1, \overline{F}_2) = 9}$$

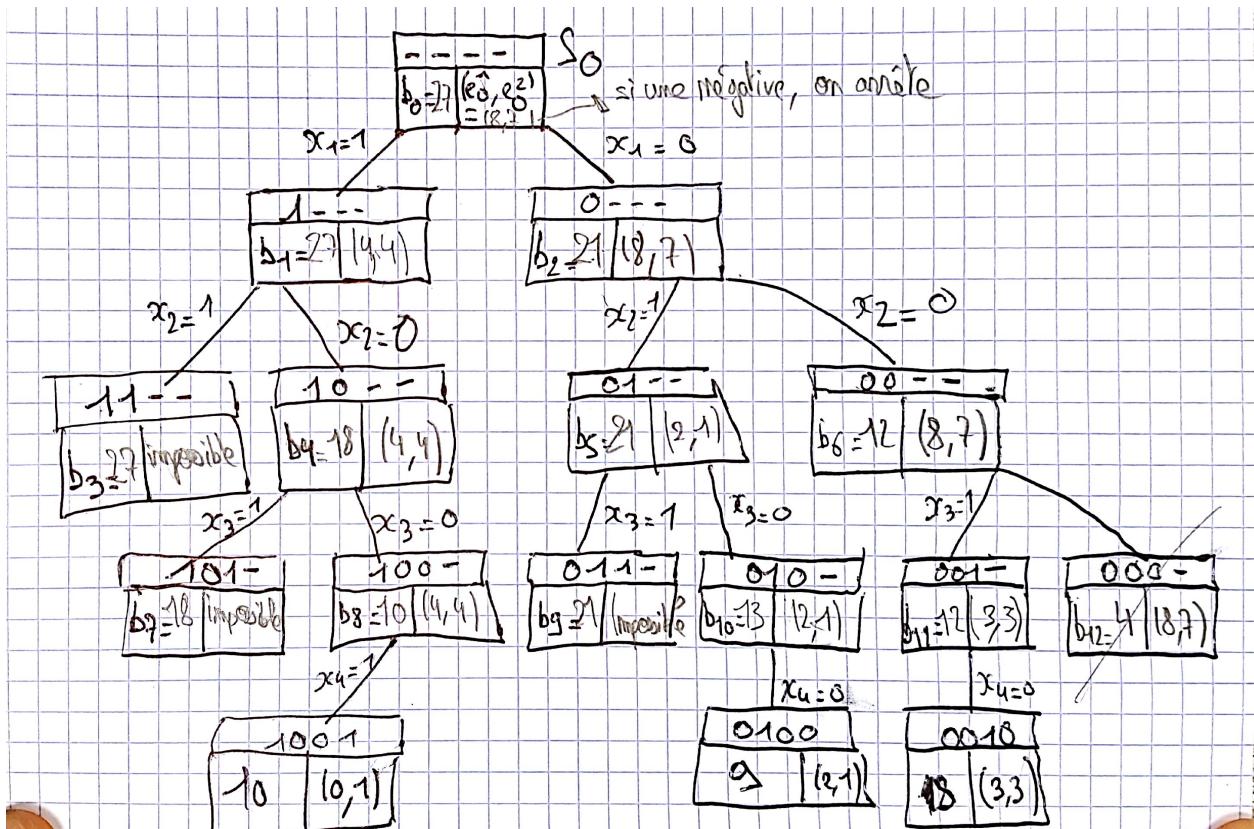


Figure 1: