

Exercice 1

(P1)

3	↓ 4	0	0	0		0
1	2	1	0	0		6
1	1	0	1	0		6
4	1	0	0	1		10

↓	1	0	-2	0	0		-12
1/2	1	1/2	0	0		3	
1/2	0	-1/2	1	0		3	
7/2	0	-1/2	0	1		7	

Coût
admis < 0
L'algorithme
est fini

0	0	-27/14	0	-1/7		-14
0	1	4/7	0	-1/7		2
0	0	-3/7	1	-1/7		2
1	0	-1/7	0	2/7		2

Valeur maximale 14 atteinte en (2, 2)

$$\begin{array}{cccc|c}
 \downarrow & & & & & \\
 3 & 4 & 0 & 0 & 0 & 0 \\
 \hline
 1 & 2 & 1 & 0 & 0 & 6 \\
 1 & 1 & 0 & 1 & 0 & 6 \\
 \boxed{4} & 1 & 0 & 0 & 1 & 10
 \end{array}$$

$$\begin{array}{cccc|c}
 \downarrow & & & & & \\
 0 & 13/4 & 0 & 0 & -3/4 & -15/2 \\
 \hline
 0 & \boxed{7/4} & 1 & 0 & -1/4 & 7/2 \\
 0 & 3/4 & 0 & 1 & -1/4 & 7/2 \\
 1 & 1/4 & 0 & 0 & 1/4 & 5/2
 \end{array}$$

$$\begin{array}{cccc|c}
 0 & 0 & -13/7 & 0 & -9/14 & -28/2 = -14 \\
 \hline
 0 & 1 & 4/7 & 0 & -1/7 & 2 \\
 0 & 0 & -3/7 & 1 & -1/7 & 2 \\
 1 & 0 & -1/7 & 0 & 2/7 & 2
 \end{array}$$

(31)

more

(P2)

$$\begin{array}{cccccc|c}
 \downarrow & 1 & 1 & -3 & 0 & 0 & 0 & 0 \\
 \hline
 & 1 & 2 & 1 & 1 & 0 & 0 & 10 \\
 & 1 & 1 & 3 & 0 & 1 & 0 & 6 \\
 & \boxed{4} & 2 & 0 & 0 & 0 & 1 & 8
 \end{array}$$

$$\begin{array}{cccccc|c}
 0 & 1/2 & -3 & 0 & 0 & -1/4 & -2 \\
 \hline
 0 & 3/2 & 1 & 1 & 0 & -1/4 & 8 \\
 0 & 1/2 & 3 & 0 & 1 & -1/4 & 4 \\
 1 & \boxed{1/2} & 0 & 0 & 0 & 1/4 & 2
 \end{array}$$

Conts
reducta
50

$$\begin{array}{cccccc|c}
 -1 & 0 & -3 & 0 & 0 & -1/2 & -4 \\
 \hline
 -3 & 0 & 1 & 1 & 0 & -1 & 2 \\
 -1 & 0 & 3 & 0 & 1 & -1/2 & 2 \\
 2 & 1 & 0 & 0 & 0 & 1/2 & 4
 \end{array}$$

Maximum 4 au point $(0, 4, 0)$.

$$\begin{array}{cccccc|c}
 & & \downarrow & & & & \\
 1 & 1 & 3 & 1 & 0 & 0 & 0 \\
 \hline
 0 & 2 & \boxed{1} & 3 & 1 & 0 & 4 \\
 2 & 4 & 1 & 1 & 0 & 1 & 6
 \end{array}$$

$$\begin{array}{cccccc|c}
 \downarrow & & & & & & \\
 1 & -5 & 0 & -8 & -3 & 0 & -12 \\
 \hline
 0 & 2 & 1 & 3 & 1 & 0 & 4 \\
 \boxed{2} & 2 & 0 & -2 & -1 & 1 & 2
 \end{array}$$

Cost
reduces
so

$$\begin{array}{cccccc|c}
 \boxed{0} & -6 & 0 & -7 & -\frac{5}{2} & -\frac{1}{2} & -13 \\
 \hline
 0 & 2 & 1 & 3 & 1 & 0 & 4 \\
 1 & 1 & 0 & -1 & -\frac{1}{2} & \frac{1}{2} & 1
 \end{array}$$

Value maximal 13 atteinte en $(1, 0, 4, 0)$

(B3)

$$\begin{array}{cccccc|c}
 & & \downarrow & & & & \\
 2 & 4 & 3 & 2 & 0 & 0 & 0 \\
 \hline
 2 & 1 & \boxed{1} & 2 & 1 & 0 & 4 \\
 2 & 4 & 1 & 1 & 0 & 1 & 6
 \end{array}$$

$$\begin{array}{cccccc|c}
 & & \downarrow & & & & \\
 -4 & 1 & 0 & -4 & -3 & 0 & -12 \\
 \hline
 2 & 1 & 1 & 2 & 1 & 0 & 4 \\
 0 & \boxed{3} & 0 & -1 & -1 & 1 & 2
 \end{array}$$

$$\begin{array}{cccccc|c}
 -4 & 0 & 0 & -11/3 & -8/3 & -1/3 & -38/3 \\
 \hline
 2 & 0 & 1 & 7/3 & 4/3 & -1/3 & 10/3 \\
 0 & 1 & 0 & -1/3 & -1/3 & 1/3 & 2/3
 \end{array}$$

Nilai maksimal $38/3$ tercapai di $(0, \frac{2}{3}, \frac{10}{3}, 0)$

(B4)