

E02r

	A_1	B_2	B_3	B_4	a_i	u_i
A_1	75	2	-3	-2	75	0
A_2	5	70	60	-4	125	-2
A_3	5	8	7	0	100	2
A_4	1	2	40	60	100	2
b_j	80	70	90	60	300	
v_j	4	8	5	-2		

$Z = 1160$ $\theta_1 = \min(75, 70) = 70$

Qui on ajoute un depot effectif avec 60

1) $\theta_1 = 75$

2) $Z = 1160$ avec $\theta_1 = 70$

3) $\theta_1 = 70$

le reste 0

$x_{11} = 75$
 $x_{12} = 5$
 $x_{21} = 70$
 $x_{22} = 0$
 $x_{31} = 40$
 $x_{32} = 60$

	1	2	3	θ	a_i	u_i
A	5	70	-3	-2	75	0
2	75	2	6	3	125	-2
3	5	8	7	0	100	2
b_j	80	70	90	60		
v_j	4	6	5	-2		

$Z = 1020$ $\theta_1 = \min(40, 75) = 40$

	1	2	3	θ	a_i	u_i
1	5	70	-3	-2	75	0
2	75	2	6	3	125	-2
3	5	8	7	0	100	2
b_j	80	70	90	60		
v_j	4	6	5	-2		

1) $\theta_1 = 40$

tous $\Delta_{ij} \leq 0$

donc $Z^* = 980$

$x_{11} = 5$
 $x_{12} = 70$
 $x_{21} = 35$
 $x_{22} = 90$
 $x_{31} = 40$

le reste = 0

Exo 2:

1) On pose x_1 : nombre de machines A
 x_2 : " " " " B

Max $Z = 20x_1 + 30x_2$

$2x_1 + x_2 \leq 100$

$x_1 + 2x_2 \leq 120$

$x_1 \geq 20$

$x_1 + x_2 = 60$

$x_1 \geq 0, x_2 \geq 0$

2

2) Max $W = -a_1 - a_2$

$2x_1 + x_2 + e_1 = 100$

$x_1 + 2x_2 + e_2 = 120$

$x_1 - e_3 + a_1 = 20$

$x_1 + x_2 + a_2 = 60$

$x_1 \geq 0, x_2 \geq 0, e_1 \geq 0, e_2 \geq 0, e_3 \geq 0, a_1 \geq 0, a_2 \geq 0$

NB: e_1, e_2, a_1, a_2
 VHB: x_1, x_2, e_3

$(x_1, x_2, e_1, e_2, e_3, a_1, a_2) = (0, 0, 100, 120, 0, 20, 60)$ SBR

$W = -a_1 - a_2$

$-a_1 = x_1 - e_3 - 20$

$-a_2 = x_1 + x_2 - 60$

$\Rightarrow W = x_1 - e_3 - 20 + x_1 + x_2 - 60$
 $W - 2x_1 - x_2 + e_3 = -80$

	x_1	x_2	e_1	e_2	e_3	a_1	a_2	b
e_1	2	1	1	0	0	0	0	100
e_2	1	2	0	1	0	0	0	120
a_1	1	0	0	0	-1	1	0	20
a_2	1	1	0	0	0	0	1	60
	-2	-1	0	0	1	0	0	-80

x	x_1	x_2	e_1	e_2	e_3	a_1	a_2	b
e_1	0	1	1	0	0	-2	0	60
e_2	0	2	0	1	1	-1	0	100
x_1	1	0	0	0	-1	1	0	20
a_2	0	1	0	0	1	-1	1	40
	0	-1	0	0	-1	2	0	-40

	x_1	x_2	e_1	e_2	e_3	a_1	a_2	b
e_3	0	1/2	1/2	0	1	-1	0	30
e_2	0	3/2	-1/2	1	0	0	0	70
x_1	1	1/2	1/2	0	0	0	0	50
a_2	0	1/2	-1/2	0	0	0	1	10
	0	3/2	1/2	0	0	1	0	-10

	x_1	x_2	e_1	e_2	e_3	a_1	a_2	b
e_1	0	0	1	0	1	-1	-1	20
e_2	0	0	0	1	-1	1	-2	20
x_1	1	0	0	0	-1	1	0	20
e_3	0	1	0	0	1	-1	1	40
	0	0	0	0	0	1	1	0

tous les $\Delta_j \geq 0$ donc $W=0$ donc Z admet une SBR 0,2

VB: e_1, e_2, x_1, x_2
 YHB: e_3 0,2

$x_1 - e_3 = 20$

$Z = 20x_1 + 30x_2 \Rightarrow x_2 + e_3 = 40$

$Z = 20(e_3 + 20) + 30(40 - e_3) \Rightarrow Z + 10e_3 = 1600$
 $= 20e_3 + 400 + 1200 - 30e_3$ 0,1

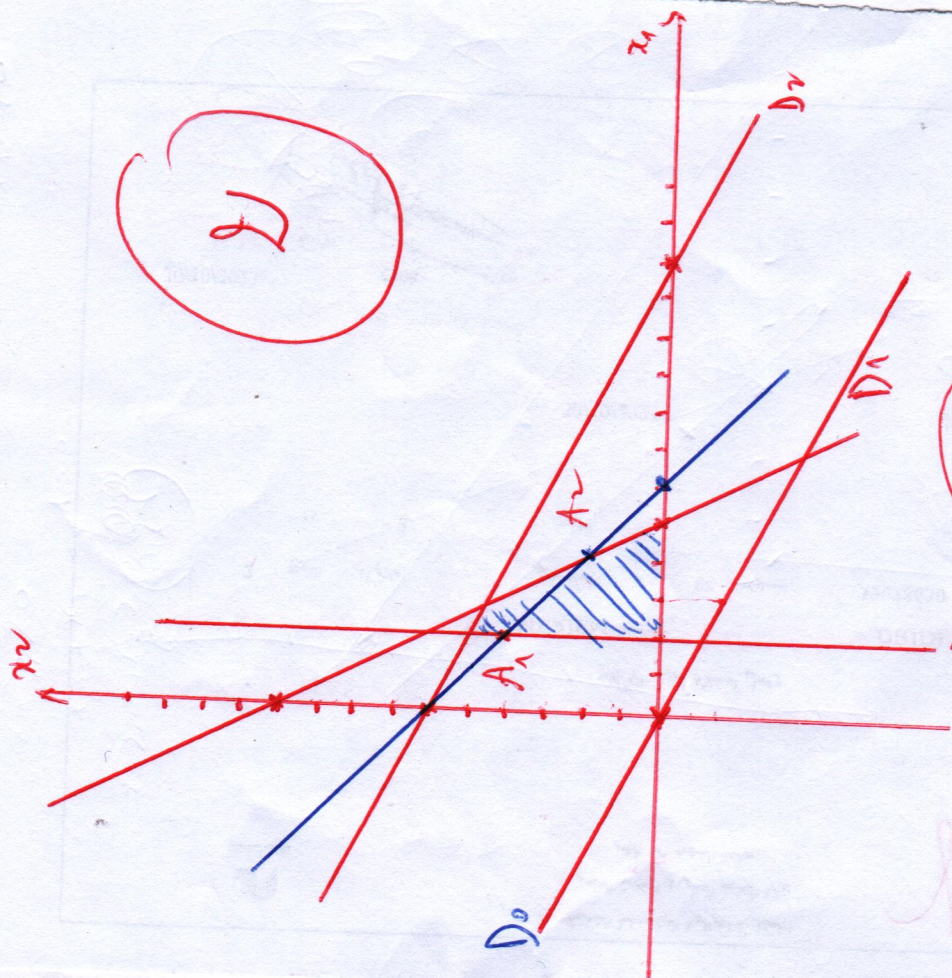
	x_1	x_2	e_1	e_2	e_3	b
e_1	0	0	1	0	1	20
e_2	0	0	0	1	-1	20
x_1	1	0	0	0	-1	20
x_2	0	1	0	0	1	40
	0	0	0	0	10	1600

tous $\Delta_j \geq 0$

donc $Z^* = 1600$

$x_1 = 20$
 $x_2 = 140$ 0,1

0,1



2

$A_1(20, 140) \rightarrow Z = 1600$
 $A_2(40, 20) \rightarrow Z = 1400$