MIN

PRIMAL

1. $Z = 4a + b$

s.a.

r1: $a + b \leq 150$

r2: $2a + b \leq 80$

r3: $a \geq 0$

r4: $b \geq 0$

-a-b>=-150
-2a-b>=-80
a,b>=0

DUAL

Z=-150x-80y

s.a

r1: -x-2y<=4
r2: -x-y<=1
r3: x>=0
r4: y>=0

max
Z=-150x-80y+0h1+0h2
-x-2y+h1=4
-x-y+h2=1

Integrantes
Gonzalez Ordoñez Daniel
Rojas Alvarado Luis Enrique

	Cj	-150	-80	0	0	
		x	y	h1	h2	
0	h1	-1	-2	1	0	4
0	h2	-1	-1	0	1	1
	Zj	0	0	0	0	0
	Cj-Zj	-150	-80	0	0	

x=	0
y=	0
h1=	4
h2=	1
Zj=	0

-x-2y+h1=4 4
-x-y+h2=1 1

a=	0
b=	0
Zj=	0

Min

PRIMAL

2. $Z = x + 3y$

s.a.

r1: $x + y \geq 10$ (x+y>=10)

r2: $2x + 2y \leq 25$ (-2x-2y>=-25)

r3: $x \leq 8$ (-x>=-8)

r4: $x \geq 0$

r5: $y \geq 0$

DUAL

Z=10a-25b-8c

s.a

a-2b-c<=1

a-2b<=3

Max Z=10a-25b-8c+0h1+0h2

a-2b-c+h1=1

a-2b+h2=3

		Cj	10	-25	-8	0	0		
			a	b	c	h1	h2		
	0	h1	1	-2	-1	1	0	1	1
	0	h2	1	-2	0	0	1	3	3
		Zj	0	0	0	0	0	0	
		Cj-Zj	10	-25	-8	0	0		
1/2*A1	10	a	1	-2	-1	1	0	1	-1
-2*b+A2 -1*a+h2	0	h2	0	0	1	-1	1	2	2
		Zj	10	-20	-10	10	0	10	
		Cj-Zj	0	-5	2	-10	0		
1/2*h1+b 1*c+a	10	a	1	-2	0	0	1	3	
	-8	c	0	0	1	-1	1	2	
		Zj	10	-20	-8	8	2	14	
		Cj-Zj	0	-5	0	-8	-2		

a=	3
b=	0
c=	2
h1=	0
h2=	0
Zj=	14

x=	8
y=	2
Zj=	14

a-2b-c+h1=1 1

a-2b+h2=3 3

Min

PRIMAL

3. $Z = 0.1x + 0.5y$

s.a.

r1: $4x + 3y \leq 30$

r2: $6x + y \leq 36$

r3: $x - y \leq 20$

r4: $x \geq 0$

r5: $y \geq 0$

DUAL

Z=-30a-36b-20c

s.a

-4x-3y>=-30
-6x-y>=-36
-x+y>=-20
x,y>=0

-4a-6b-c<=0.1
-3a-b+c<=0.5

Z=-30a-36b-20c+0h1+0h2
-4a-6b-c+h1=0.1
-3a-b+c+h2=0.5

	Cj	-30	-36	-20	0	0	
		a	b	c	h1	h2	
0	h1	-4	-6	-1	1	0	0.1
0	h2	-3	-1	1	0	1	0.5
	Zj	0	0	0	0	0	0
	Cj-Zj	-30	-36	-20	0	0	

a=	0
b=	0
c=	0
h1=	1/10
h2=	0.5
Zj=	0

x=	0
y=	0
zj=	0

-4a-6b-c+h1=0.1
-3a-b+c+h2=0.5

1/10
1/2

4. $Z = m + 2n$

s.a.

r1: $3m + n \leq 14$

r2: $m + 5n \leq 20$

r3: $m \leq n - 10$

r4: $m \geq 0$

r5: $n \geq 0$

Primal

Min Z=m+2n

-3m-n>=-14

-m-5n>=-20

-m+n>=10

m,n>=0

Dual

Max Z= -14x -20y+10z

-3x-y-z<=1

-x-5y+z<=2

x,y,z>=0

-3x-y-z+h1=1

-x-5y+z+h2=2

		Cj	-14 x	-20 y	10 z	0 h1	0 h2		
	0	h1	-3	-1	-1	1	0	1	-1
	0	h2	-1	-5	1	0	1	2	2
		Zj	0	0	0	0	0	0	
		Cj-Zj	-14	-20	10	0	0		
z+h1	0	h1	-4	-6	0	1	1	3	-0.5
	10	z	-1	-5	1	0	1	2	-0.4
		Zj	-10	-50	10	0	10	20	
		Cj-Zj	-4	30	0	0	-10		

No tiene solución por dual, con simplex 2.0

5. $Z = 4x + 3y$

s.a.

r1: $3x + 2y \leq 25$

r2: $x \leq 5$

r3: $8x \leq 21 - 6y$

r4: $x \geq -2$

r5: $y \geq 1$

Primal

Min Z=4x+3y

-3x-2y>=-25
-x>=-5
-8x-6y>=-21
x>=-2
y>=1
m,n>=0

Dual

Max Z= -25a -5b-21c-2d+e

-3a-b-8c+d<=4
-2a-6c+e<=3
a,b,c,d,e>=0

-3a-b-8c+d+h1=4
-2a-6c+e+h2=3

	Cj	-25	-5	-21	-1	1	0	0		
		a	b	c	d	e	h1	h2		
0	h1	-3	-1	-8	1	0	1	0	4	#¡DIV/0!
0	h2	-2	0	-6	0	1	0	1	3	3
	Zj	0	0	0	0	0	0	0	0	
	Cj-Zj	-25	-5	-21	-1	1	0	0		
0	h1	-3	-1	-8	1	0	1	0	4	
1	e	-2	0	-6	0	1	0	1	3	
	Zj	-2	0	-6	0	1	0	1	3	
	Cj-Zj	-23	-5	-15	-1	0	0	-1		

a	0
b	0
c	0
d	0
e	3
h1	4
h2	0
Zj	3

-3a-b-8c+d+h1<=4 4
-2a-6c+e+h2=3 3