socrative
A showbie PRODUCT

Nombre _____
Fecha _____

Clase 4 LP - Forma estándar y variables de holgura-15-oct

Puntuación _____

1. Convertir el siguiente LP a forma estándar:

minimize 2x_1 + 7x_2 + x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

Ajuste de la función objetivo:

(A) maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

(B) maximize 2x_1 + 7x_2 + x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

(C) minimize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

2. Convertir el siguiente LP a forma estándar:

maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

Ajuste de restricciones "mayor o igual" (excepto las de no negatividad)

(A) maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 <= -24
x_1 + 2x_2 + x_3 <= -18
x_3 >= 0

(B) maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
3x_1 + x_2 >= 24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

(C) maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

(D) maximize -2x_1 - 7x_2 - x_3
subject to x_1 - x_3 = 7
-3x_1 - x_2 <= -24
x_1 + 2x_2 + x_3 >= 18
x_3 >= 0

3. Convertir el siguiente LP a forma estándar :

maximize -2x_1 - 7x_2 - x_3
subject to: x_1 - x_3 = 7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

Ajuste de restricciones "de igualdad"

(A) maximize -2x_1 - 7x_2 - x_3
subject to: x_1 - x_3 <= 7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

(B) maximize -2x_1 - 7x_2 - x_3
subject to: x_1 - x_3 <= 7
-x_1 + x_3 <= -7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

(C) maximize -2x_1 - 7x_2 - x_3
subject to: x_1 - x_3 >= 7
-x_1 + x_3 <= 7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

4. Convertir el siguiente LP a forma estándar:

maximize -2x_1 - 7x_2 - x_3
subject to:
x_1 - x_3 <= 7
-x_1 + x_3 <= -7
-3x_1 - x_2 <= -24
-x_1 - 2x_2 - x_3 <= -18
x_3 >= 0

Ajuste de restricciones "de no negatividad para x1"

(A) maximize 2x_1p + 2x_1n - 7x_2 - x_3
subject to:
x_1p -x_1n - x_3 <= 7
x_1p - x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2 <= -24
-x_1p + x1n - 2x_2 - x_3 <= -18
x_3 >= 0

(B) maximize -2x_1p + 2x_1n - 7x_2 - x_3
subject to:
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
3x_1p + 3x_1n - x_2 <= -24
-x_1p + x1n - 2x_2 - x_3 <= -18
x_3 >= 0; x_1p >= 0, x_1n >= 0

(C) maximize -2x_1p + 2x_1n - 7x_2 - x_3
subject to:
x_1p -x_1n - x_3 <= 7
-x_1p - x_1n + x_3 <= -7
-3x_1p - 3x_1n - x_2 <= -24
-x_1p - x1n - 2x_2 - x_3 <= -18
x_3 >= 0; x_1p >= 0, x_1n >= 0

(D) maximize -2x_1p + 2x_1n - 7x_2 - x_3
subject to:
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2 <= -24
-x_1p + x1n - 2x_2 - x_3 <= -18
x_3 >= 0; x_1p >= 0, x_1n >= 0

5. Convertir el siguiente LP a forma estándar:

maximize -2x_1p + 2x_1n - 7x_2 - x_3
subject to:
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2 <= -24
-x_1p + x1n - 2x_2 - x_3 <= -18
x_3 >= 0; x_1p >= 0, x_1n >= 0

Ajuste de restricciones "de no negatividad para x2"

(A) maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to :
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2p + x_2n <= -24
-x_1p + x1n - 2x_2p + 2x_2n - x_3 <= -18
x_3 >= 0, x_1p >= 0, x_1n>= 0

(B) maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to :
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2p + x_2n <= -24
-x_1p + x1n - 2x_2p + 2x_2n - x_3 <= -18
x_3 >= 0, x_1p >= 0 , x_1n >= 0, x_2p>=0 ,x_2n>=0

(C) maximize -2x_1p + 2x_1n - 7x_2p - 7x_2n - x_3
subject to :
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2p + x_2n <= -24
-x_1p + x1n - 2x_2p + 2x_2n - x_3 <= -18
x_3 >= 0, x_1p >= 0 , x_1n >= 0, x_2p>=0 ,x_2n>=0

(D) maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to :
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n + x_2p + x_2n <= -24
-x_1p + x1n - 2x_2p - 2x_2n - x_3 <= -18
x_3 >= 0, x_1p >= 0 , x_1n >= 0, x_2p>=0 ,x_2n>=0

6. Convertir el siguiente LP a forma estándar con variables de holgura:

maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to :
x_1p -x_1n - x_3 <= 7
-x_1p +x_1n + x_3 <= -7
-3x_1p + 3x_1n - x_2p + x_2n <= -24
-x_1p + x1n - 2x_2p + 2x_2n - x_3 <= -18
x_3 >= 0, x_1p , x_1n, x_2p>=0 , x_2n>=0

Adición de variables de holgura.

A maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to
H1 = -x_1p +x_1n + x_3 +7
H2 = x_1p -x_1n - x_3 - 7
H3= 3x_1p - 3x_1n + x_2p - x_2n -24
H4= x_1p - x1n + 2x_2p - 2x_2n + x_3 -18
x_3 >= 0, x_1p , x_1n, x_2p +x_2n, H1>=0,H2>=0,H3>=0, H4>=0

B maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to
H1 = -x_1p +x_1n + x_3 +7
H2 = x_1p -x_1n - x_3 - 7
H3= 3x_1p - 3x_1n + x_2p - x_2n -24
H4= x_1p - x1n + 2x_2p - 2x_2n + x_3 -18
x_3 >= 0, x_1p , x_1n, x_2p +x_2n

C maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to
H1 = x_1p -x_1n - x_3 +7
H2 = x_1p -x_1n - x_3 - 7
H3= 3x_1p - 3x_1n + x_2p - x_2n -24
H4= x_1p - x1n + 2x_2p - 2x_2n + x_3 -18
x_3 >= 0, x_1p , x_1n, x_2p +x_2n, H1>=0,H2>=0,H3>=0,H4>=0

D maximize -2x_1p + 2x_1n - 7x_2p + 7x_2n - x_3
subject to
H1 = -x_1p +x_1n + x_3 +7
H2 = x_1p -x_1n - x_3 - 7
H3= -3x_1p + 3x_1n - x_2p + x_2n -24
H4= x_1p - x1n + 2x_2p - 2x_2n + x_3 -18
x_3 >= 0, x_1p , x_1n, x_2p +x_2n, H1>=0,H2>=0,H3>=0,H4>=0