

$$Z_{\min} = x_1 + x_2 + 3x_3 + 2x_4$$

$$\text{s.a.: } x_1 + 2x_2 + 4x_3 \geq 8$$

$$x_1 + 3x_3 + x_4 \geq 10$$

$$3x_2 + 4x_3 - x_4 \geq 7$$

$$x_1, x_2, x_3, x_4 \geq 0$$

Maximizar $Z = 8y_1 + 10y_2 + 7y_3$

$Z - 8y_1 - 10y_2 - 7y_3 = 0$

Restricciones:

$$1y_1 + 1y_2 + 3y_3 \leq 1$$

$$1y_1 + 1y_2 + 3y_3 + s_1 = 1$$

$$2y_1 + 3y_3 \leq 1$$

$$2y_1 + 3y_3 + s_2 = 1$$

$$4y_1 + 3y_2 + 4y_3 \leq 3$$

$$4y_1 + 3y_2 + 4y_3 + s_3 = 3$$

$$1y_2 - 1y_3 \leq 2$$

$$1y_2 - 1y_3 + s_4 = 2$$

	z	y1	y2	y3	s1	s2	s3	s4	R	
z	1	-8	-10		-7	0	0	0	0	0
s1	0	1	1	1	3	1	0	0	0	1
s2	0	2	0	0	3	0	1	0	0	1
s3	0	4	3	3	4	0	0	1	0	3
s4	0	0	1	1	-1	0	0	0	1	2

#DIV/0!

	z	y1	y2	y3	s1	s2	s3	s4	R	
z	1	2	0	23	10	0	0	0	10	
y2	0	1	1	3	1	0	0	0	1	
s2	0	2	0	3	0	1	0	0	1	
s3	0	1	0	-5	-3	0	1	0	0	
s4	0	-1	0	-4	-1	0	0	1	1	

$$z = 10$$

$$y_2 = 1$$

Si utilizamos el otro valor

	0 z	y1	y2	y3	s1	s2	s3	s4	R	
z	1	-8	-10		-7	0	0	0	0	0
s1	0	1	1	1	3	1	0	0	0	1
s2	0	2	0	0	3	0	1	0	0	1
s3	0	4	3	3	4	0	0	1	0	3
s4	0	0	1	1	-1	0	0	0	1	2

#DIV/0!

	0 z	y1	y2	y3	s1	s2	s3	s4	R	
z	1	-8	-10		-7	0	0	0	0	0
s1	0	1	1	1	3	1	0	0	0	1
s2	0	2	0	0	3	0	1	0	0	1
s3	0	11/3	1	11/3	0	0	1/3	0	1	
s4	0	0	1	-1	0	0	0	1	2	

	0 z	y1	y2	y3	s1	s2	s3	s4	R	
z	1	5 1/3	0	6 1/3	0	0	3 1/3	0	10	
s1	0	-1/3	0	12/3	1	0	-1/3	0	0	
s2	0	2	0	3	0	1	0	0	1	
y2	0	11/3	1	11/3	0	0	1/3	0	1	
s4	0	-11/3	0	-2 1/3	0	0	-1/3	1	1	

$$Z_{\min} = 5x_1 + 3x_2 + x_3$$

$$\text{s.a.: } x_1 + 2x_2 - x_3 \geq 8$$

$$2x_1 + x_2 + 3x_3 \geq 10$$

$$x_1, x_2, x_3 \geq 0$$

Max $Z = 8y_1 + 10y_2$

$Z - 8y_1 - 10y_2 = 0$

$$1y_1 + 2y_2 \leq 5$$

$$1y_1 + 2y_2 + s_1 = 5$$

$$2y_1 + 1y_2 \leq 3$$

$$2y_1 + 1y_2 + s_2 = 3$$

$$-1y_1+3y_2 \leq 1$$

$$-1y_1+3y_2+s_3 \leq 1$$

	0 z	y1	y2	s1	s2	s3	R	
z	1	-8	-10	0	0	0	0	
s1	0	1	2	1	0	0	5	2 1/2
s2	0	2	1	0	1	0	3	3
s3	0	-1	3	0	0	1	1	1/3

	0 z	y1	y2	s1	s2	s3	R	
z	1	-11 1/3	0	0	0	3 1/3	3 1/3	
s1	0	12/3	0	1	0	-2/3	4 1/3	2 3/5
s2	0	2 1/3	0	0	1	-1/3	2 2/3	1 1/7
y2	0	-1/3	1	0	0	1/3	1/3	-1

	0 z	y1	y2	s1	s2	s3	R
z	1	0	0	0	4 6/7	15/7	16 2/7
s1	0	0	0	1	-5/7	-3/7	2 3/7
y1	0	1	0	0	3/7	-1/7	11/7
y2	0	0	1	0	1/7	2/7	5/7

$$z = 16 \frac{2}{7}$$

$$y_2 = \frac{5}{7}$$

$$y_1 = 1 \frac{1}{7}$$