Combinatorics Hw 8.1 — 2019280366 — Albert Sebastin Millan

$\max Z = 3x_1 + 6x_2 + 2x_3 + x_4 + x_5$

$$\begin{cases} 3x_1 + 4x_2 + x_3 + x_4 = 2 \\ x_1 + 3x_2 + 2x_3 + x_5 = 1 \end{cases}$$

1.

$x_4 = 2 - x_3 \geq 0 \mid 2$

$x_5 = 1 - 2x_3 \geq 0 \mid 1/2$

C_j			3	6	2	0	0	B_i
C_B	X_B	P_0	P_1	P_2	P_3	P_4	P_5	
0	x_4	2	3	4	1	1	0	2
0	x_5	1	1	3	2	0	1	1/2
Z		0	3	6	2↑	0	0	

1.

$x_4 = \frac{3}{2} - \frac{5}{2}x_1 \geq 0 \mid 3/5$

$x_2 = \frac{1}{2} - \frac{1}{2}x_1 \geq 0 \mid 1$

C_j			3	6	2	0	0	B_i
C_B	X_B	P_0	P_1	P_2	P_3	P_4	P_5	
0	x_4	3/2	5/2	5/2	0	1	-1/2	3/5
2	x_3	1/2	1/2	3/2	1	0	1/2	1
Z		1	1↑	3	0	0	-1	

3.

$x_1 = \frac{2}{5} - x_2 \geq 0 \mid 3/5$

$x_3 = \frac{1}{5} - x_2 \geq 0 \mid 1/5$

C_j			3	6	2	0	0	B_i
C_B	X_B	P_0	P_1	P_2	P_3	P_4	P_5	
3	x_1	2/5	1	1	0	2/5	-1/5	2/5
2	x_3	1/5	0	1	1	-1/5	3/5	1/5
Z		11/5	0	2↑	0	-1/5	-4/5	

$-\frac{1}{2}$

$\frac{1}{10}$

$-\frac{2}{10}$

C_j			3	6	2	0	0	B_i
C_B	X_B	P_0	P_1	P_2	P_3	P_4	P_5	
3	x_1	4/5	1	0	-1	3/5	-4/5	
6	x_2	1/5	0	1	1	-1/5	3/5	
Z		12/5	0	0	-2	0	-2	

$\therefore x_1 = \frac{2}{5},\ x_2 = \frac{1}{5},\ x_3 = 0,\ Z = 12/5$