Atividade 2

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$$\text{Min } Z = 1200x_1 + 850x_2$$

$x_1 + 2x_2 \geq 5000$ (1)
$5x_1 + 3x_2 \geq 12000$ (2)
$x_1 \geq 0,\ x_2 \geq 0$

1ª Fase

$x_1 + 2x_2 - x_3 + x_4 = 5000$ (x_3: sumplus, x_4: artificial)

$5x_1 + 3x_2 - x_5 + x_6 = 12000$ (x_5: sumplus, x_6: artificial)

$$\text{Max } Z_{1ªFase} = -x_4 - x_6$$

		0 x_1	0 x_2	0 x_3	-1 x_4	0 x_5	-1 x_6	b	
	x_4 -1	1	2	-1	1	0	0	5000	(1)
←	x_6 -1	5	3	0	0	-1	1	12000	(2)
	$z_j - c_j$	-6	-5	1	0	1	0	-17000	

		0 x_1	0 x_2	0 x_3	-1 x_4	0 x_5	-1 x_6	b
←	x_4 -1	0	7/5	-1	1	1/5	-1/5	2600
	x_1 0	1	3/5	0	0	-1/5	1/5	2400
	$z_j - c_j$	0	-7/5	1	1	-1/5	6/5	-2600

$(1)' = (1) - (2)'$

$(2)' = 1/5\,(2)$

		0 x_1	0 x_2	0 x_3	-1 x_4	0 x_5	-1 x_6	b
	x_2 0	0	1	-5/7	5/7	1/7	-1/7	13000/7
	x_1 0	1	0	3/7	-3/7	-2/7	2/7	9000/7
	$z_j - c_j$	0	0	0	1	0	1	0

$(1)'' = 5/7\,(1)'$

$(2)'' = (2)' - 3/5\,(1)''$

SBA 1ª Fase $x = (9000/7,\ 13000/7,\ 0, 0, 0, 0)$

2ª Fase

Max $Z' = -1200x_1 - 850x_2$

	-1200 x_1	-850 x_2	0 x_3	0 x_5	b
x_2 -850	0	1	-5/7	1/7	13000/7
x_1 -1200	1	0	3/7	-2/7	9000/7
$Z_j - c_j$	0	0	$\frac{650}{7}$	$\frac{1550}{7}$	-3.12143

SBA $x^* = \left(\frac{9000}{7}, \frac{13000}{7}, 0, 0\right)$

$Z^* = 3.12143$