

EX 2.5. Z = DAQ 48.

MIN  $W = -x_1 + 2x_2$

SA  $x_1 + x_2 \geq 1$

$-5x_1 + 2x_2 \geq -10$

$3x_1 + 5x_2 \geq 15$

$x_1, x_2 \geq 0$

DUAL

MAX  $Z = y_1 - 10y_2 + 15y_3$

SA  $y_1 - 5y_2 + 3y_3 \leq 1$

$y_1 + 2y_2 + 5y_3 \leq 2$

FORMA PADRÃO

$-Z + y_1 - 10y_2 + 15y_3 = 0$

$y_1 - 5y_2 + 3y_3 + y_{f1} = 1$

$y_1 + 2y_2 + 5y_3 + y_{f2} = 2$

TABELA DO SIMPLEX

BASE	$y_1$	$y_2$	$y_3$	$y_{f1}$	$y_{f2}$	RHS
$y_{f1}$	1	-5	3	1	0	1 $\frac{1}{3}$
$y_{f2}$	1	2	5	0	1	2 $\frac{2}{5}$
$-Z$	1	-10	15	0	0	0

BASE	$y_1$	$y_2$	$y_3$	$y_{f1}$	$y_{f2}$	RHS
$(-1/3) (-1/5) y_3$	$1/3$	$-5/3$	1	$1/3$	0	$1/3$
$y_{f2}$	$-2/3$	$31/3$	0	$-5/3$	1	$1/3$
$-Z$	-4	15	0	-5	0	5

Base	$y_1$	$y_2$	$y_3$	$y_{t1}$	$y_{t2}$	RHS
$y_3$	$\frac{2}{31}$	0	1	$\frac{7}{31}$	$\frac{8}{31}$	$\frac{8}{31}$
$(-15) \left(\frac{5}{3}\right) y_2$	$-\frac{7}{31}$	1	0	$-\frac{5}{31}$	$\frac{3}{31}$	$\frac{1}{31}$
$L_0 - z$	-6	0	0	$-\frac{80}{31}$	$-\frac{45}{31}$	$-\frac{119}{31}$

$$01 - 5x_5 + 10x_2$$

$$z_1 = 5x_2 + 10x_5$$

RESPOSTA:

$$y_1 = 0, \quad y_{t1} = 0$$

$$y_2 = \frac{1}{31}, \quad y_{t2} = 0$$

$$y_3 = \frac{8}{31}, \quad z = \frac{119}{31}$$

$$5x_2 + 5x_5 - 10 = 5 \quad \text{Linha}$$

$$10x_5 + 5x_2 - 10 = 10 \quad \text{Linha}$$

$$5x_2 - 5x_5 - 5 = 0 \quad \text{Linha}$$

USANDO A REGRA

$$0 = 5x_2 + 5x_5 - 10 + 5x_5$$

$$1 = 10x_5 + 5x_2 - 10 + 5x_2$$

$$5 = 5x_2 + 5x_5 - 10 + 5x_5$$

USANDO A REGRA

Base	$y_1$	$y_2$	$y_3$	$y_{t1}$	$y_{t2}$	RHS
$y_3$	$\frac{2}{31}$	0	1	$\frac{7}{31}$	$\frac{8}{31}$	$\frac{8}{31}$
$y_2$	$-\frac{7}{31}$	1	0	$-\frac{5}{31}$	$\frac{3}{31}$	$\frac{1}{31}$
$L_0 - z$	-6	0	0	$-\frac{80}{31}$	$-\frac{45}{31}$	$-\frac{119}{31}$

Base	$y_1$	$y_2$	$y_3$	$y_{t1}$	$y_{t2}$	RHS
$y_3$	$\frac{2}{31}$	0	1	$\frac{7}{31}$	$\frac{8}{31}$	$\frac{8}{31}$
$y_2$	$-\frac{7}{31}$	1	0	$-\frac{5}{31}$	$\frac{3}{31}$	$\frac{1}{31}$
$L_0 - z$	-6	0	0	$-\frac{80}{31}$	$-\frac{45}{31}$	$-\frac{119}{31}$