

Practico 4

1. Fabricación de muebles

Primal

$$\begin{aligned} \text{f.o. } \max \quad Z &= 15x_1 + 30x_2 \\ \text{s.a.} \quad 2x_1 + 3x_2 &\leq 120 \\ x_1 + 4x_2 &\leq 100 \\ x_1, x_2 &\geq 0 \end{aligned}$$

Dual

$$\begin{aligned} \text{f.o. } \rightarrow \min \quad w &= 120y_1 + 100y_2 \\ \text{s.a.} \quad 2y_1 + y_2 &\geq 15 \\ 3y_1 + 4y_2 &\geq 30 \end{aligned}$$

2. Inversión financiera

Primal

$$\begin{aligned} \text{f.o. } \max \quad Z &= 0,15x_1 + 0,08x_2 \\ \text{s.a.} \quad x_1 + x_2 &\leq 20.000 \\ x_2 &\leq 12.000 \\ x_2 &\geq 0,25(x_1 + x_2) \Rightarrow 0,25x_2 - 0,75x_1 \leq 0 \\ x_1, x_2 &\geq 0 \end{aligned}$$

Dual

$$\text{f.o. } \min \quad w = 20.000y_1 + 12.000y_2 + 0y_3$$

$$\begin{aligned} \text{s.a.} \quad y_1 + 0,25y_2 + y_3 &\geq 0,15 \\ -0,75y_1 + y_3 &\geq 0,08 \end{aligned}$$

3. Cosecha de cultivo

Primal

$$\begin{aligned} \text{f.o. } \max \quad Z &= 800x_1 + 600x_2 \\ \text{s.a.} \quad x_1 + x_2 &\leq 100 \\ 6x_1 + 4x_2 &\leq 480 \\ x_1, x_2 &\geq 0 \end{aligned}$$

Dual

$$\begin{aligned} \text{f.o. } \min \quad w &= 100y_1 + 480y_2 \\ \text{s.a.} \quad y_1 + y_2 &\geq 800 \\ y_1 + 4y_2 &\geq 600 \end{aligned}$$

tema: _____

Fecha: _____

4. Asignación de Tiempo

Primal

$$\text{f.o. max } Z = 2x_1 + 3x_2$$

$$\text{s.a. } x_1 + x_2 \leq 30$$

$$x_1 \geq 10$$

$$x_2 \geq 8$$

$$x_1, x_2 \geq 0$$

Dual

$$\text{f.o. min } w = 30y_1 - 10y_2 - 8y_3$$

$$\text{s.a. } y_1 + y_2 \geq 2$$

$$y_1 \geq 3$$

$$y_1, y_2 \geq 0$$

5. Venta de artículos de moda

Primal

$$\text{f.o. max } Z = 20x_1 + 25x_2$$

$$\text{s.a. } 2x_1 + x_2 \leq 40$$

$$x_1 + 3x_2 \leq 30$$

$$x_1, x_2 \geq 0$$

Dual

$$\text{f.o. min } w = 40y_1 + 30y_2$$

$$\text{s.a. } 2y_1 + y_2 \geq 20$$

$$y_1 + 3y_2 \geq 25$$

$$y_1, y_2 \geq 0$$