**1.** Grafično reši naslednje linearne programe:

a)

$$\begin{aligned} \max \quad & x_1 + x_2 \\ & 2x_1 + x_2 \leq 50 \\ & x_1 + 2x_2 \leq 40 \\ & x_1, x_2 \geq 0 \end{aligned}$$

b)

$$\begin{aligned} \min \quad & x_1 + x_2 \\ & x_1 - 2x_2 \leq -4 \\ & x_1 \geq 1 \\ & x_1 + x_2 \geq -3 \\ & x_1, x_2 \geq 0 \end{aligned}$$

c)

$$\begin{aligned} \max \quad & x_1 + x_2 \\ & x_1 - 2x_2 \leq -4 \\ & x_1 \geq 1 \\ & x_1 + x_2 \geq -3 \\ & x_1, x_2 \geq 0 \end{aligned}$$

d)

$$\begin{aligned} \max \quad & 3x_1 - x_2 \\ & 2x_1 - x_2 \leq -1 \\ & -\frac{1}{2}x_1 - x_2 \leq -3 \\ & x_1 + x_2 \leq -1 \\ & x_1, x_2 \geq 0 \end{aligned}$$

e)

$$\begin{aligned} \max \quad & x_1 + x_2 \\ & \frac{1}{2}x_1 - x_2 \leq 0 \\ & x_1 + x_2 \leq 5 \\ & -2x_1 + x_2 \leq 1 \\ & x_1, x_2 \geq 0 \end{aligned}$$

**2.** S simpleksno metodo reši naslednje linearne probleme:

a)

$$\begin{aligned} \max \quad & x_1 + x_2 \\ -x_1 + x_2 &\leq 1 \\ x_1 &\leq 3 \\ x_2 &\leq 2 \\ x_1, x_2 &\geq 0 \end{aligned}$$

b)

$$\begin{aligned} \max \quad & x_1 \\ x_1 - x_2 &\leq 1 \\ -x_1 + x_2 &\leq 2 \\ x_1, x_2 &\geq 0 \end{aligned}$$

c)

$$\begin{aligned} \max \quad & x_2 \\ -x_1 + x_2 &\leq 0 \\ x_1 &\leq 2 \\ x_1, x_2 &\geq 0 \end{aligned}$$

d)

$$\begin{aligned} \max \quad & 2x_1 + 5x_2 \\ 2x_1 - x_2 &\leq 3 \\ x_1 + x_2 &\leq 3 \\ -2x_1 + x_2 &\leq 3 \\ -2x_1 + 3x_2 &\leq 6 \\ x_1, x_2 &\geq 0 \end{aligned}$$