

Matematičke metode u prometu
9. prosinac 2006.

1. Grafičkom metodom riješite linearni problem

$$\begin{aligned} \min(x_1 + 2x_2) \\ x_1 + 4x_2 &\geq 12 \\ 3x_1 + 2x_2 &\geq 24 \\ 4x_1 + x_2 &\geq 20 \\ x_1, x_2 &\geq 0 \end{aligned}$$

2. Linearni problem riješite numerički:

$$\begin{aligned} \max(2x_1 - x_2 + 3x_3) \\ 3x_1 + 4x_2 - x_3 &\geq 6 \\ x_1 + 2x_2 + x_3 &= 12 \\ 2x_1 - x_2 - x_3 &\leq 18 \\ x_1, x_2, x_3 &\geq 0 \end{aligned}$$

3. Odredite plan transporta robe s minimalnim troškovima i izračunajte taj trošak

	O_1	O_2	O_3	a_i
I_1	3	1	4	32
I_2	2	5	3	24
I_3	1	4	2	40
I_4	5	1	3	42
b_j	75	50	64	

4. Transportna je mreža matricno zadana. Odredite maksimalni tok i najkraći put kroz mrežu.

$$M = \begin{bmatrix} 0 & 80 & 90 & 90 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 30 & 0 & 30 & 0 & 0 \\ 0 & 30 & 0 & 0 & 20 & 50 & 0 & 0 & 0 \\ 0 & 0 & 40 & 0 & 0 & 40 & 0 & 20 & 0 \\ 0 & 0 & 0 & 0 & 0 & 30 & 20 & 0 & 60 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 40 & 80 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 80 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 70 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix}$$