

Optimizing Methods

First List of Problems

1. For the problems below indicate the problem type

(a)

$$\begin{aligned} \max f(x, y) &= 3x + 4y \\ \text{subject to } x + 4y - z &\leq 10 \\ y + z &\geq 6 \\ x - y &\leq 3. \end{aligned}$$

(b)

$$\begin{aligned} \min f(x, y) &= 3x^2 + 4 \sin(yz) \\ \text{subject to } x + 4y &\leq 10 \\ y + z &= 6 + \pi \\ x - y &\leq 3. \\ z &\in \{0, \frac{\pi}{2}, \pi\}. \end{aligned}$$

2. For the problems a) and b) indicate the objective function, the constraints conditions.
3. Indicate whether the problem is an NLP or an LP

$$\begin{aligned} \max f(x, y, z, m) &= x - 3y + 1,25z - 2 \log(m) \\ \text{subject to } m \exp(y) &\geq 10 \\ \log(m) - x + 4z &\geq 6 \\ x - 3y &\leq 9. \end{aligned}$$