

Exercise 6.4: Consider the following LP with only one restricting equality:

$$\begin{aligned} \min \quad & \sum_{i=1}^n c_i x_i \\ \text{s.t.} \quad & \sum_{i=1}^n a_i x_i = b \\ & 0 \leq x_i \leq 1 \quad i = 1, \dots, n. \end{aligned}$$

1. Provide a simple feasibility test for the problem.
2. Give an algorithm with running-time $\mathcal{O}(n \log n)$ that finds an optimum solution. (2+3 Points)

Submission deadline: Tuesday, June 2, 2026, 16:00, via eCampus (in groups of at most 3 students).