

Αλγοριθμική Επιχειρησιακή Έρευνα Τέταρτη Εργασία

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Νοέμβριος 2019

1. Consider the problem $\min 2x_1 + 3x_2$ s.t. $-x_1 + 2x_2 \leq 5$ and reformulate it a linear programming problem.

2. (Road lighting) Consider a road divided in n segments that is illuminated by m lamps. Let p_j be the power of the j th lamp. The illumination I_i of the i th segment is assumed to be $\sum_{j=1}^m a_{ij} p_j$ where a_{ij} are known coefficients. Let I_i be the desired illumination of road i .

3. Consider a school district with I neighborhoods, J schools and G grades at each school. Each school j has a capacity C_{jg} for grade g . In each neighborhood i , the student population of grade g is S_{ig} . Finally the distance of school j from neighborhood i is d_{ij} .

4. Consider a set P described by linear inequality constraints $P = \{x \in \mathbb{R}^n : a_i x \leq b_i, i = 1, \dots, m\}$. A ball with center y and radius r is defined as the set of all points within distance r from y .