

CS 525 - Fall 2011 - Homework 7*

assigned 11/9/11 - due 11/16/11

1. Consider the standard min-cost network flow problem (5.15) from page 145 in the book. Suppose $\ell = 0$ and $u = \infty$. Prove that there exists an optimal solution with at most $|\mathcal{N}|$ non-zero edge flows.
2. Consider the LP

$$\begin{array}{ll} \text{minimize} & x_1 + x_2 \\ \text{subject to} & x_1 + 2x_2 = \theta \\ & x_1, x_2 \geq 0 \end{array}$$

Compute the optimal solutions of the primal and the dual as functions of θ . Graph the optimal cost as a function of θ .

3. Do Exercise 6-3-1.
4. Do Exercise 6-4-1.

*Hard copy to be submitted **in class** on the due date. No late homework accepted.