Math 7502

Homework 9

1. Consider the transportation problem (T) with cost matrix (c_{ij}), supply vector (p_i) and demand vector (q_j) displayed in the following array:

	2	8	9	4	6	2
3	5	3	9	3	8	2
13	5	6	3	15	7	16
6	9	20	10	22	17	25
9	3	7	3	14	9	14

(a) Use the *north-west vertex rule* to find a basic feasible solution of (T).

(b) Write down the linear program for the dual program (T*).

(c) Use complementary slackness conditions to show that the *shipping matrix*

$$\begin{pmatrix} 0 & 0 & 0 & 1 & 0 & 2 \\ 0 & 7 & 0 & 0 & 6 & 0 \\ 2 & 0 & 4 & 0 & 0 & 0 \\ 0 & 1 & 5 & 3 & 0 & 0 \end{pmatrix}$$

solves (T). Explain what you do.