CS / MCS 401 Week #12 Exercises (Fall 2007)

(to be turned in on Wednesday, Nov 21)

Exercise 15.4-1

Problem 15-1

Problem 15-6

Problem 15.7

Exercise Q (next page).

Exercise Q. Consider the weighted digraph at right. Edges not shown have weight ∞. In the terminology of the all-pairs shortest path algorithm for digraphs (See handout on web site.), find $d^k_{1,10}$ for $k = 0, 1, 2, ..., 9, 10$, and find $short_k(1,10)$ for all values of k for which $d^k_{1,10} < \infty$.

Recall that $short_k(i,j)$ is a path from i to j that has minimal length, subject to the constraint that any intermediate vertices on the path lie in the set $\{1,2,...,k\}$, and that d^k_{ij} is the length of $short_k(i,j)$.