CS140: Algorithm
Assignment 7
Assigned 11/5/99, Due 11/12/99

1. The triangle problem is defined as:

   Input: Graph $G = (V, E)$ represented as an adjacency matrix

   Question: Are there three vertices of G that are pair-wise adjacent?

   Design an $O(n^{2.81})$ algorithm for this problem by reducing it to a problem we've covered in class.

2. Design an algorithm for decreasing the key of an element in a (binary) heap that runs in time $O(\lg(n))$, where n is the number of elements in the heap.

3. Find a maximum flow in the network shown in Figure 1 using the Edmonds-Karp algorithm. At each stage of the algorithm show the residual graph and the augmenting path.

4. Problem 27-3 on page 627 of the text.