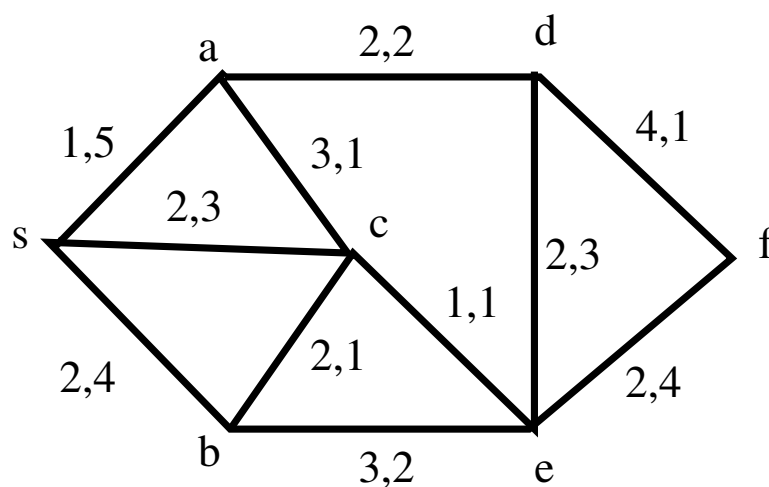


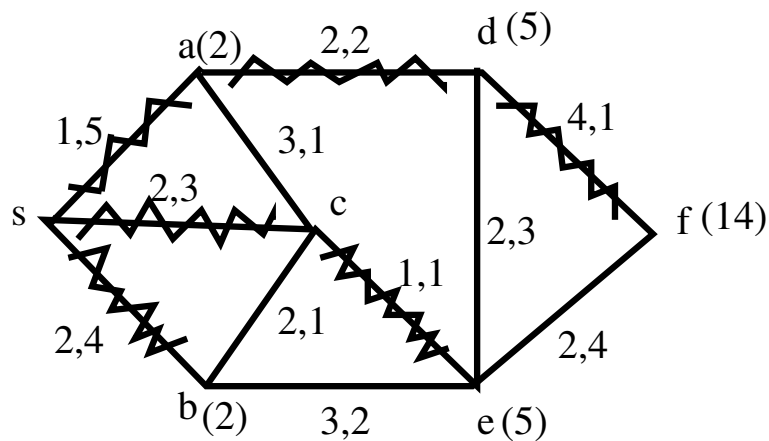
OPERATIONS RESEARCH II 21-393

Homework 3: Due Friday November 5.

- Find a shortest path from s to all other nodes in the digraph below. Each edge (x, y) is labelled by a pair (a, b) and the length of the corresponding arc is $a + bt$ where t is the time the path reaches x . All arcs are directed lexicographically e.g. (c, e) is directed from c to e .



Solution



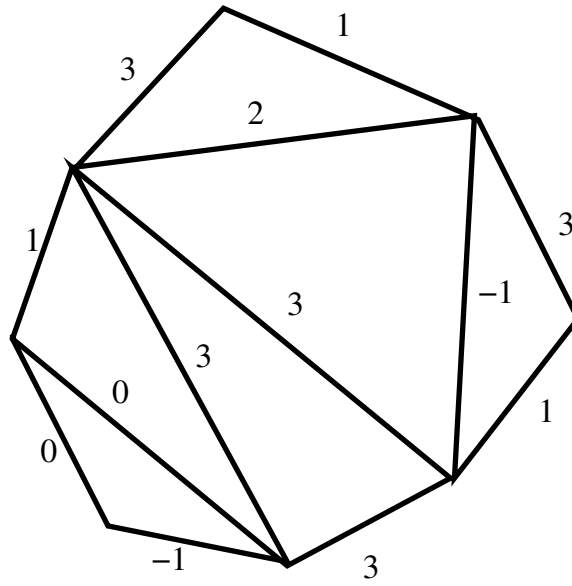
2. Find a minimum cost assignment with the costs given in the matrix below:

$$\begin{bmatrix} 2 & 3 & 1 & 4 & 2 \\ 1 & 3 & 2 & 2 & 4 \\ 3 & 2 & 4 & 2 & 3 \\ 1 & 3 & 2 & 4 & 2 \\ 2 & 1 & 3 & 3 & 2 \end{bmatrix}$$

Solution

$$\begin{bmatrix} 2 & 3 & 1^* & 4 & 2 \\ 1^* & 3 & 2 & 2 & 4 \\ 3 & 2 & 4 & 2^* & 3 \\ 1 & 3 & 2 & 4 & 2^* \\ 2 & 1^* & 3 & 3 & 2 \end{bmatrix}$$

3. Find a minimum weight spanning tree in the weighted graph below:



Solution

