CS302 HW8

Problem 1
Consider the weighted, undirected graph V={0, 1, 2, 3, 4, 5, 6, 7, 8}, E={ (0,1:8), (0,2:4), (1,3:7), (1,5:1), (2,3:3), (2,4:8), (3,4:2), (3,5:6), (4,6:7), (4,7:4), (5,7:2), (6,7:4), (6,8:5), (7,8:3) } where (i,j:w) is shorthand for bi-directional edge (i,j) being assigned the weight w.

Hint: Before you start, sketch the graph (V,E) to facilitate visual look-up of edges.

(a) Apply Prim's algorithm to determine the minimum spanning tree. Write the correct sequence in which vertices and edges are considered when starting with vertex 0. Sketch the result.

(b) Apply Kruskal's algorithm for determining the minimum spanning tree. Write the correct sequence in which edges are added. Process lowest numbered vertex first in case of a tie. Sketch the result.