* **Due** May 29 by 11:59pm

**Exercises - Graphs (Part Three)**

Answer the following questions by implementing the code samples and/or answering the questions in a word document. Upload all project files and word documents zipped to the exercise dropbox.

1a. Find a minimum spanning tree for the graph below using Kruskal's Algorithm.

1b. Is this minimum spanning tree unique? Why?

2. Do either Prim's or Kruskal's algorithm work if there are negative edge weights? Justify your answer.

3. Write a Graph class that stores edges using an adjacency list. Your class should have the following methods:

a) addVertex(newVertex)  
b) addEdge(vertex1, vertex2), this method should verify that both vertices are already in the graph  
c) edgeSize(), returns the number of edges in the graph  
d) vertexSize(), returns the number of vertices in the graph

4. Find a topological ordering for the graph below: