CMPSCI 311: Introduction to Algorithms   **Spring 2018**

## Discussion 02/16/18

2/09/2018   Name:

Instructions. You will form groups to work on these problems in discussion section. List your group members on your worksheet and turn it in at the end of class.

1. **Dijkstra.** Execute Dijkstra's algorithm to find a shortest path from node s to t. Once you are sure what the best path is, stop running Dijkstra. (We normally would run Dijkstra until we had a path to all reachable nodes!)
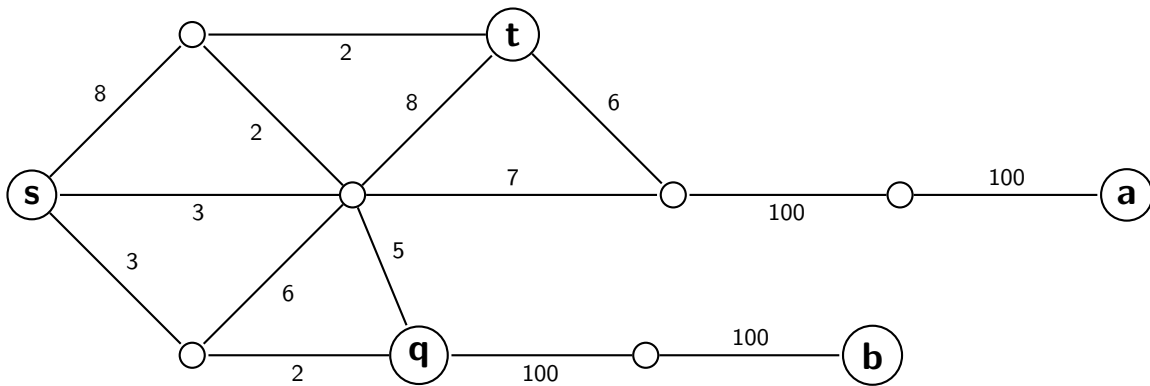

2. What is the shortest path to q?

3. Draw an edge between a and b with a weight of -1000. Is there such a thing as a shortest path between s and t in our new graph?

4. **Minimum Spanning Tree.**

   Will Prim's algorithm and Kruskal's algorithm produce correct MSTs when there are negative weights? You can running them on the previous graph with -1000 added.

5. How many MSTs are possible for the graph below?
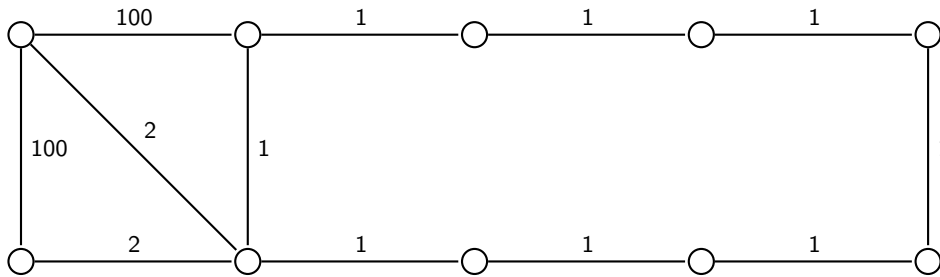
6. Prove that a graph with unique edge weights has a unique MST.