## 1 A\* Search

For the graph below, let g(u, v) be the weight of the edge between any nodes u and v. Let h(u, v) be the value returned by the heuristic for any nodes u and v.



- a) Given the weights and heuristic values for the graph below, what path would A\* search return, starting from A and with G as a goal? A\* would return A-D-E-G.
- b) Is the heuristic admissible? Why or why not? The heuristic is not admissible because h(C, G) = 5, but the shortest path from C to G has length 3.



a) Perform Prim's algorithm to find the minimum spanning tree of the following graph. Pick A as the initial node. Whenever there are more than one node with the same cost, process them in alphabetical order.



b) Use Kruskal's algorithm to find a minimum spanning tree.



c) There are quite a few MSTs here. How many can you find?