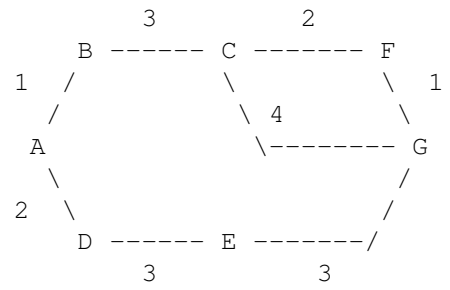
CS 61B A* Search and MSTs Fall 2015

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`.

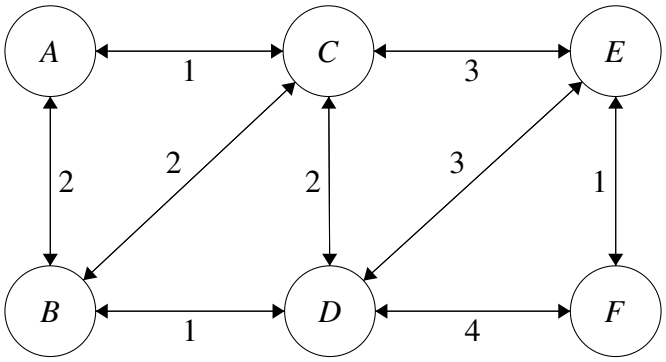


Edge weights:	Heuristics:
g(A, B) = 1	h(A, G) = 8
g(B, C) = 3	h(B, G) = 6
g(C, F) = 4	h(C, G) = 5
g(C, G) = 4	h(F, G) = 1
g(F, G) = 1	h(D, G) = 6
g(A, D) = 2	h(E, G) = 3
g(D, E) = 3	
g(E, G) = 3	

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?

b) Is the heuristic admissible? Why or why not?

2 Minimum Spanning Trees



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?