



1. Give the order in which Dijkstra’s Algorithm would visit each vertex starting from vertex A, where “visiting a vertex v ” means “relaxing all of the edges out of v .”

A _____

2. Change one of the weights in the graph so that the shortest paths tree returned by Dijkstra’s is not correct.
Hint: We showed in class that Dijkstra’s shortest paths tree is correct so long as all edges are non-negative.

Set the weight of the edge connecting vertex _____ and vertex _____ to the integer weight _____.

3. Suppose we use the following heuristic.

$$h(A, G) = 2$$

$$h(B, G) = 2$$

$$h(C, G) = 20$$

$$h(D, G) = 2$$

$$h(E, G) = 6$$

$$h(F, G) = 2$$

$$h(G, G) = 0$$

$$h(H, G) = 2$$

Recall that A* search is just Dijkstra’s algorithm, except that the priority of a vertex v is given by the sum of the distance from the source to v plus $h(v, G)$, and also that we stop the search when the target is visited.

Give the **path** (not order visited) that A* search returns from A to G. You may not need all blanks.

A _____ G