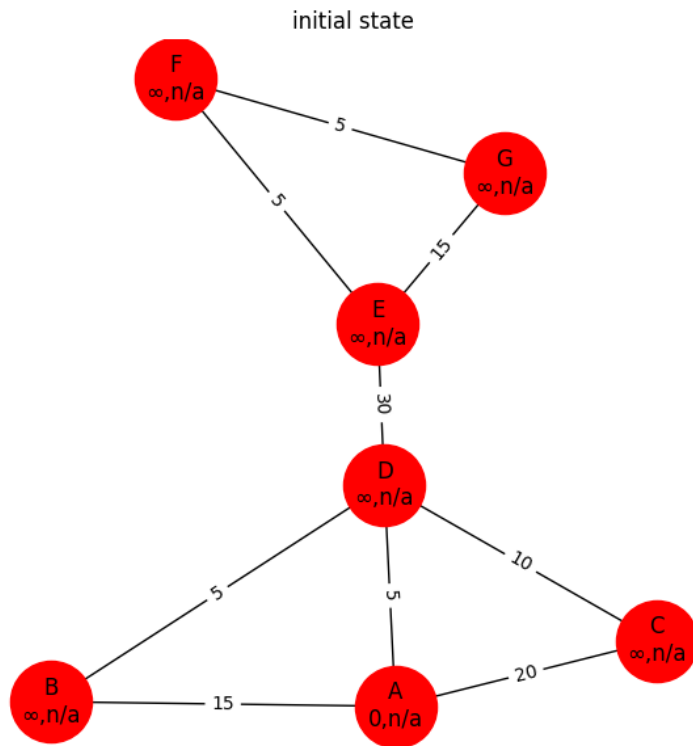


# Homework 9, MTH 325

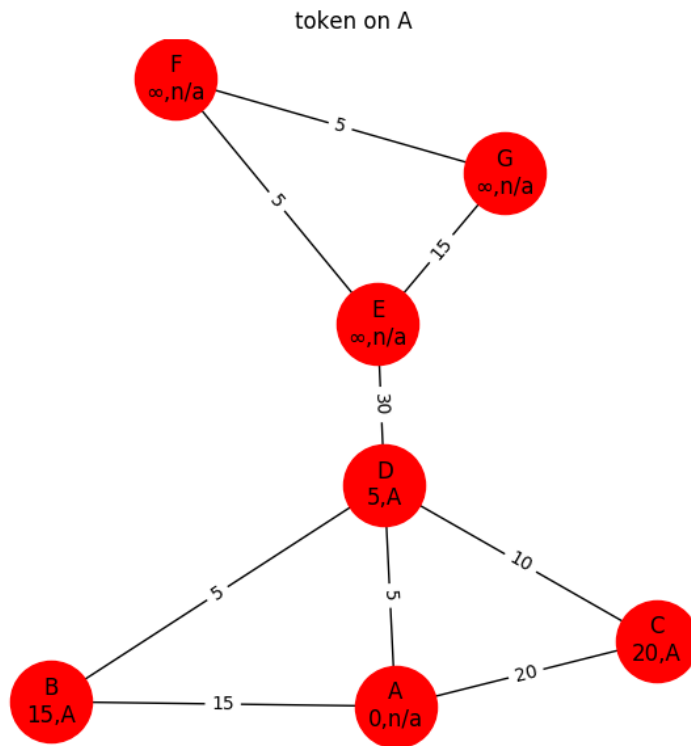
Thomas Bailey

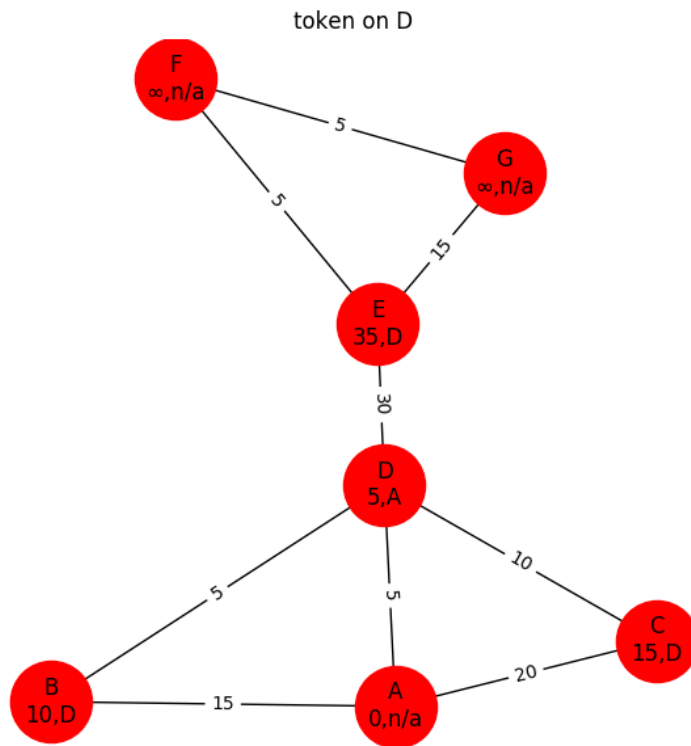
November 2018

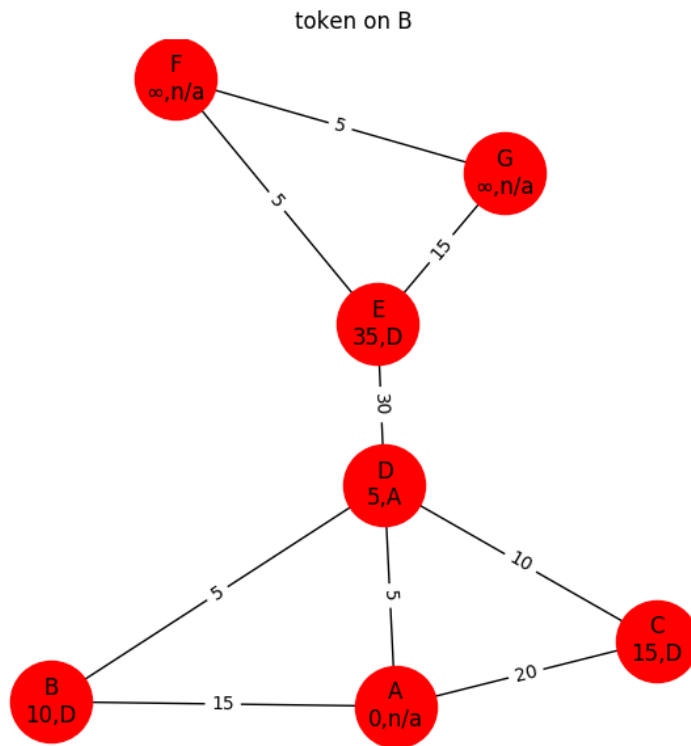
1. (a) A, Q, C, K, F, D, U, B, N, X, J, I, R, O, W, M, P  
(b) A, V, L, I, F, T, R, E, C, O, N, M, D  
(c) Y, F, O, X, Z, A, S, L, I, B, N, G, W, R, D, V, E
2. (a) A, Q, U, I, C, K, B, R, O, W, N, F, X, J, M, P, D  
(b) A, V, L, F, T, E, C, N, M, D, O, R, I  
(c) Y, F, O, I, B, V, E, X, Z, N, G, W, A, S, R, D, L

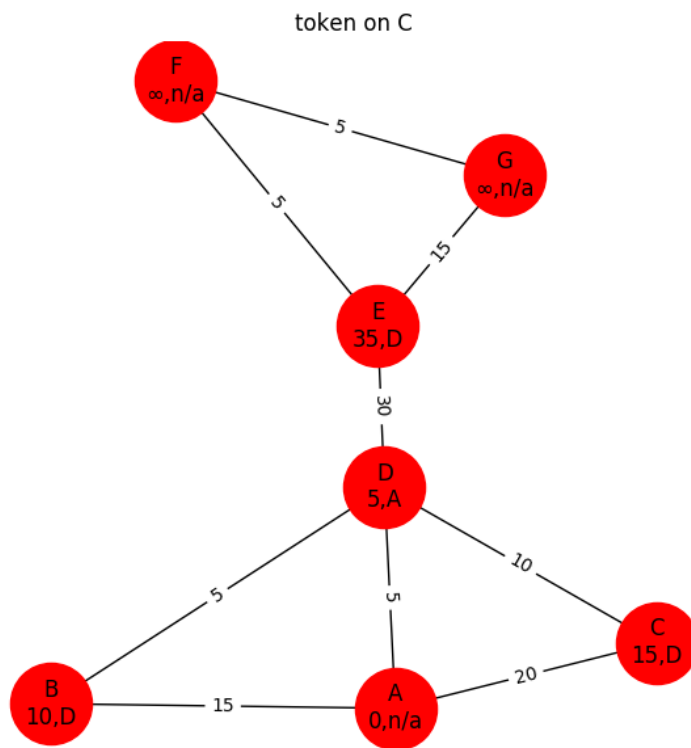


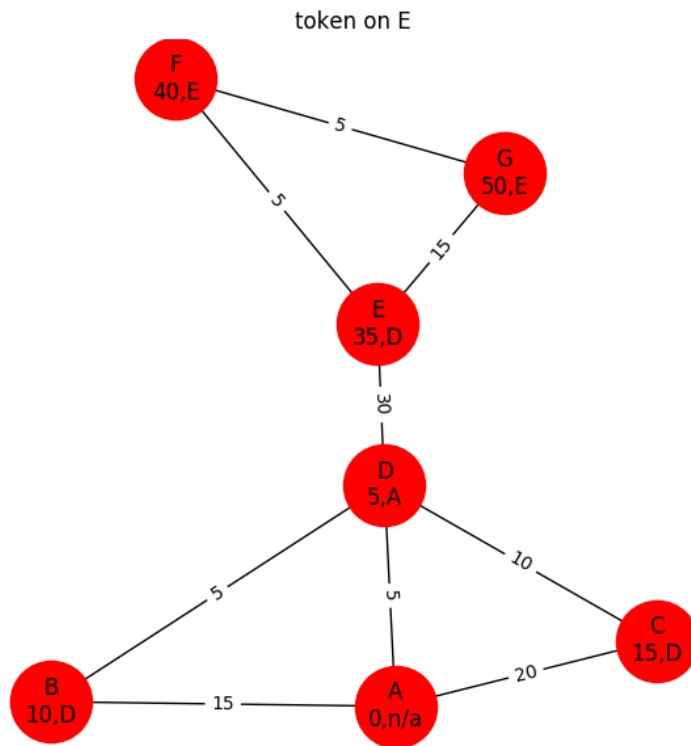
4. (a)

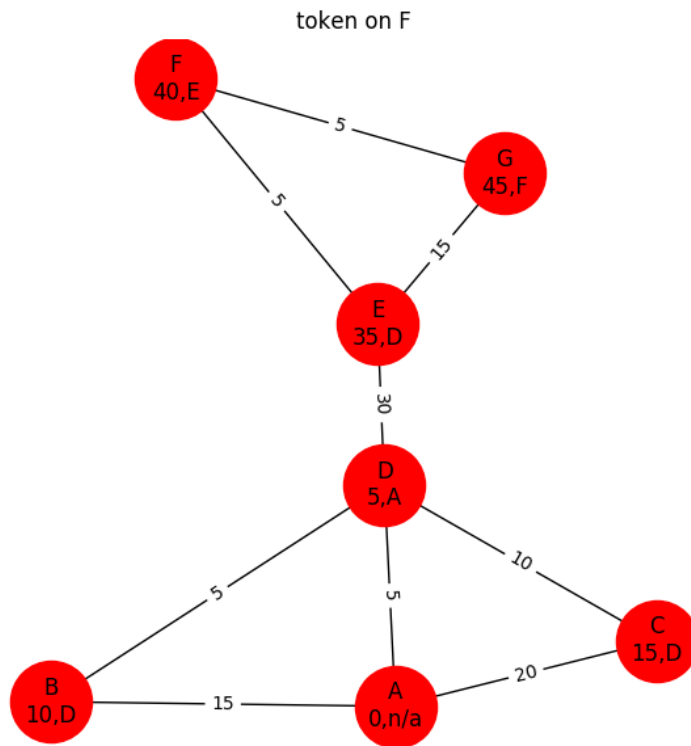




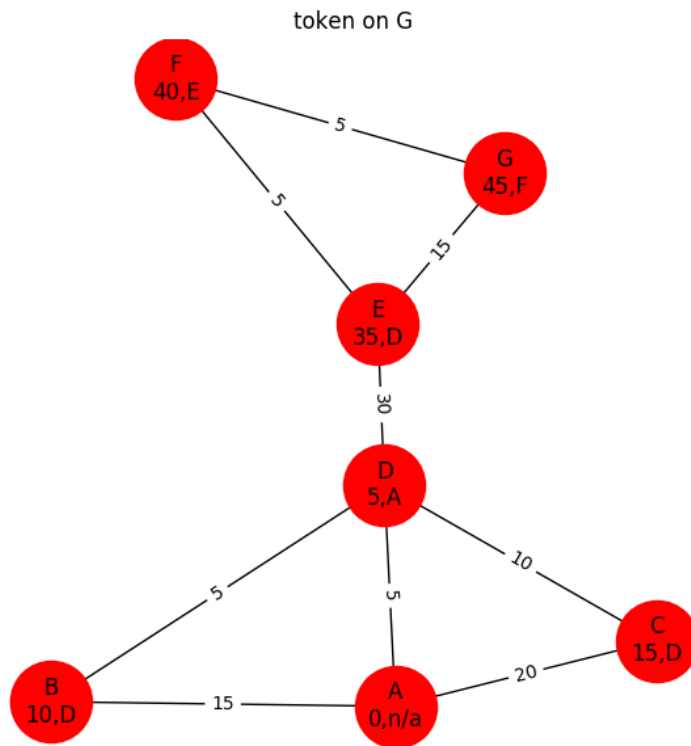


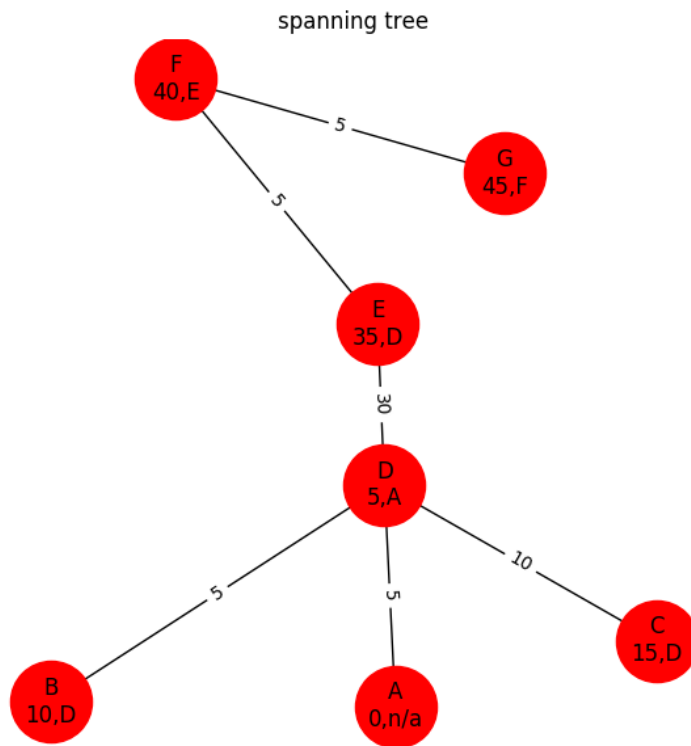




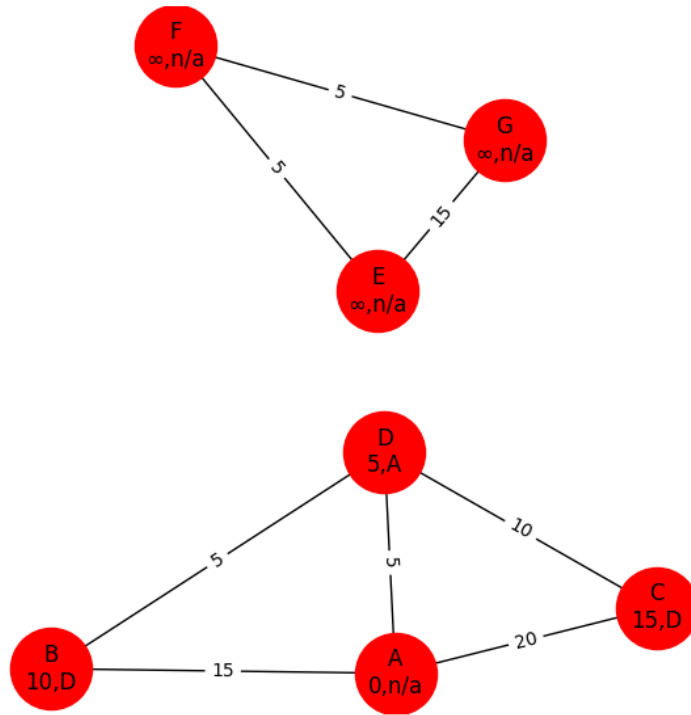






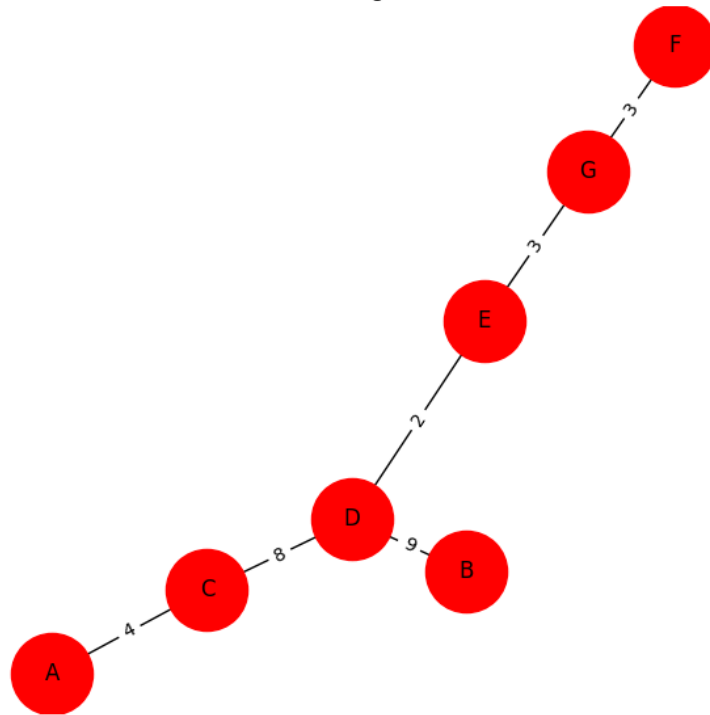


(b)

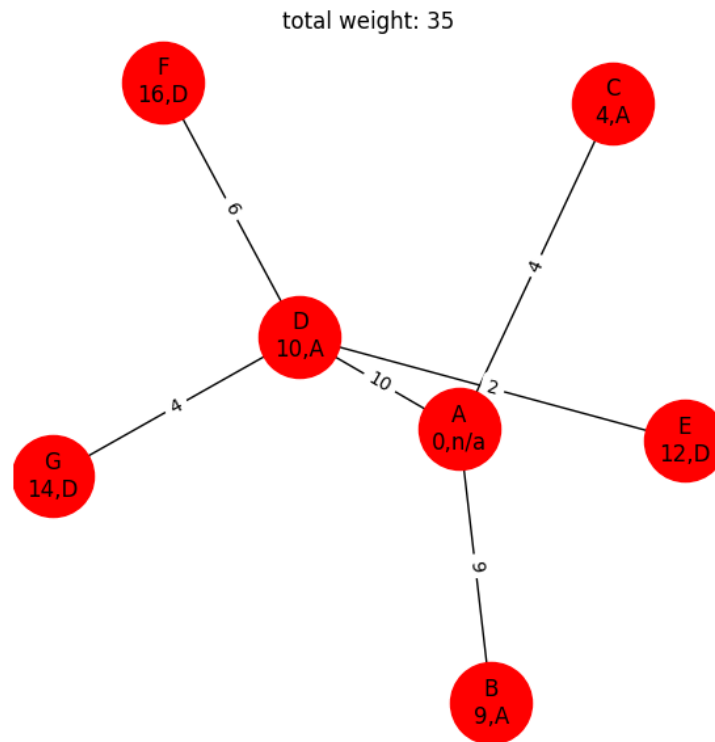


(c)

total weight: 29



5. (a)



- (b)
- (c) The edge  $AD$  will never be part of a minimum spanning tree with  $A$  as the root because there is a better way to get from  $A$  to  $D$  through  $C$ . A minimum spanning tree is concerned with the overall minimum weight for the whole graph.
- (d) The edge  $AD$  will always be part of a minimum distance spanning tree with root  $A$  because it is the shortest path from  $A$  to  $D$ . The minimum distance spanning tree shows the shortest distance from any given point to the root, and does not minimize the total weight.
- (e) Dijkstra's Algorithm does not also produce minimum spanning trees, and minimum distance spanning trees are not the same as minimum spanning trees.