

Names: _____

CS Logins: _____

MSTs: Kruskal's

As always, sit with a partner and work through these together.

Activity 4: Runtime of Naïve Kruskal's

Fill in the left-hand run times below for Kruskal's Algorithm based on the naïve union-find implementation of merging clouds.

Activity 5: Runtime of Path-Compression Kruskal's

Fill in the right-hand run times below of Kruskal's Algorithm based on the path-compression union-find implementation of merging clouds.

function kruskal(G):

//Input: undirected, weighted graph G

//Output: list of edges in MST

for vertices v in G: -----
 makeCloud(v)

1. 0(_____)

1. 0(_____)

MST = []

Sort edges by weight -----

2. 0(_____)

2. 0(_____)

for all edges (u,v): -----

3. 0(_____)

3. 0(_____)

 if u and v are not in same cloud:-----

4. 0(_____)

4. 0(_____)

 add (u,v) to MST

 merge clouds containing u and v----

5. 0(_____)

5. 0(_____)

return MST

Runtime of Naïve Kruskal's: _____

of Path-Compression Kruskal's: _____