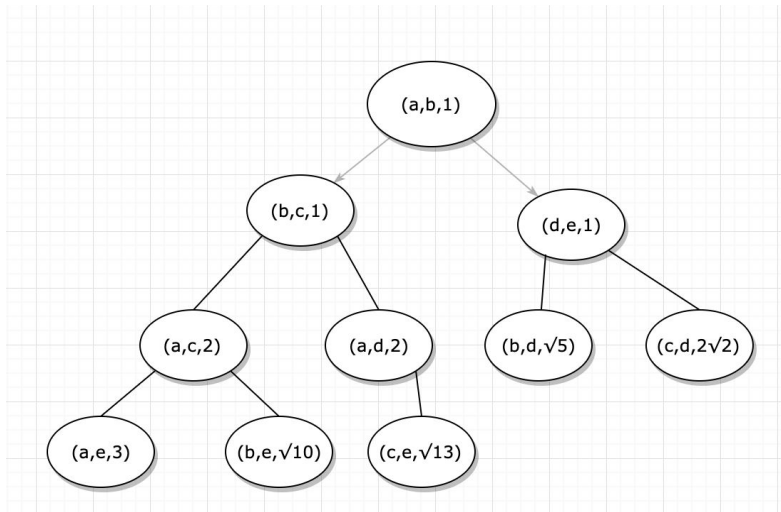Name: _____   USC ID: _____

Quiz 8: Clustering (10 points), **15 minutes**
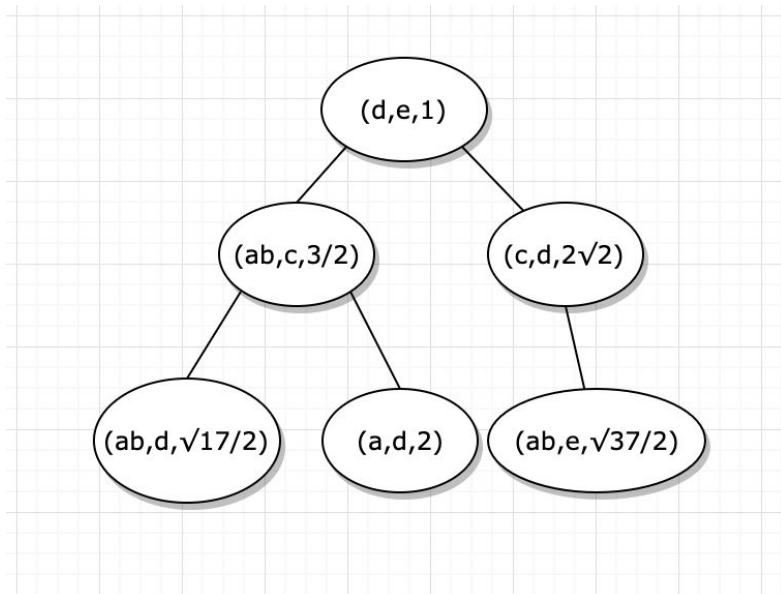## TA handling this quiz: Abhishek Bhatt abhishpb@usc.edu

Consider clustering the following 2-dimensional data points using the (agglomerative) hierarchical clustering algorithm. Assume that the algorithm uses a heap for finding closest clusters to merge and uses the **centroid**-based method to measure the cluster distance (using Euclidean distance).

$$a = (0,0), b = (1,0), c = (2,0), d = (0,2), e = (0, 3)$$

1. [3 points] Show the initial heap (after heapified). The heap should show pairs of clusters and their distances.

2. [3 points] Show the heap after the first merge (using **eager** deletion).

3. [4 points] Draw a dendrogram for the clustering process. Make sure you indicate the distance when two clusters are merged.