

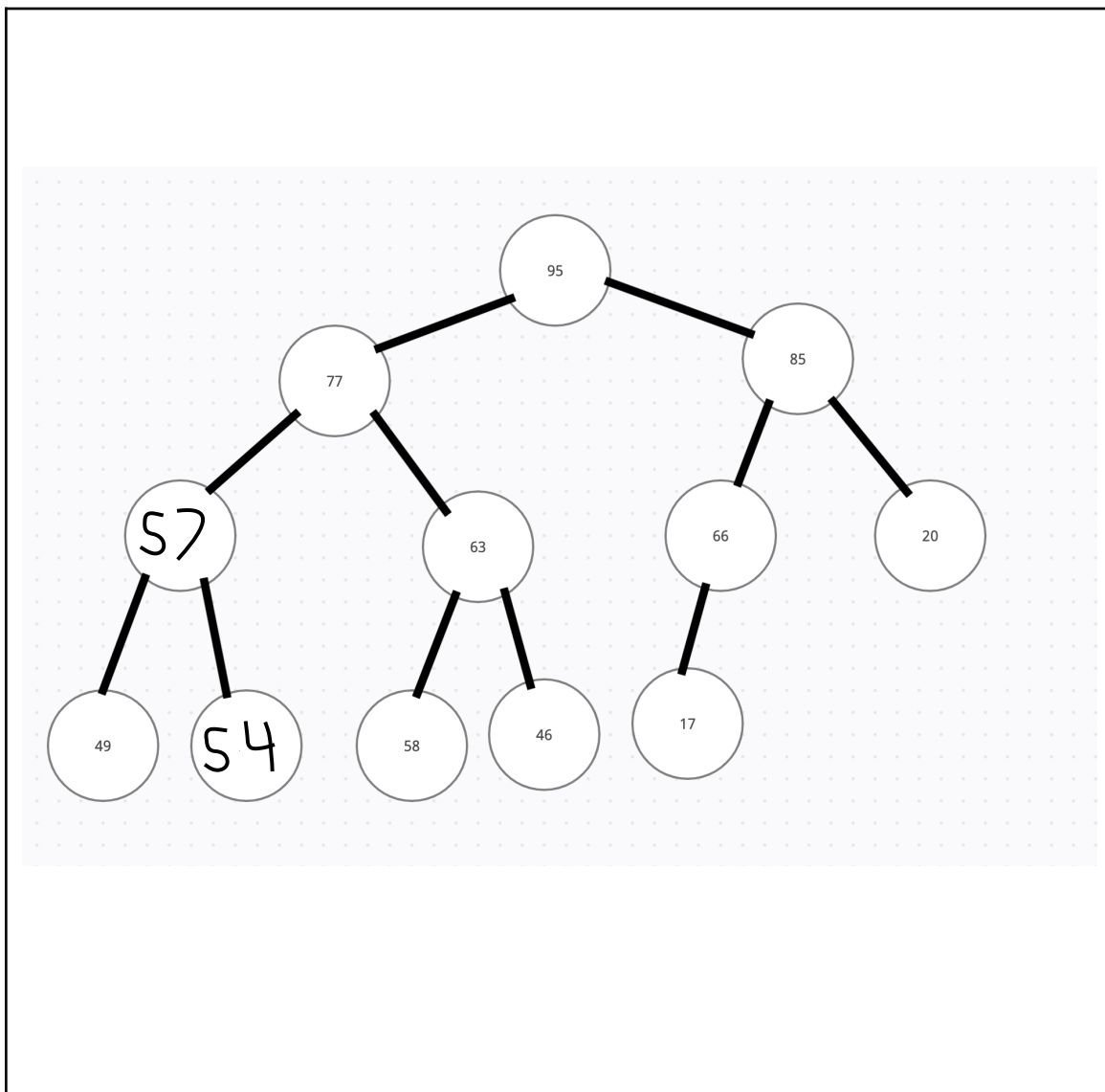
# PA 7 Part 1: Heap Worksheet

DSC 30 Spring 2021 - Marina Langlois

Name	James Lu
PID	

1. Insert the following elements in the given order to an empty **binary (d = 2) max-heap**. Draw the tree representation of the heap after all insertions.

Elements to insert: [77, 49, 66, 85, 58, 17, 20, 54, 57, 63, 46, 95]

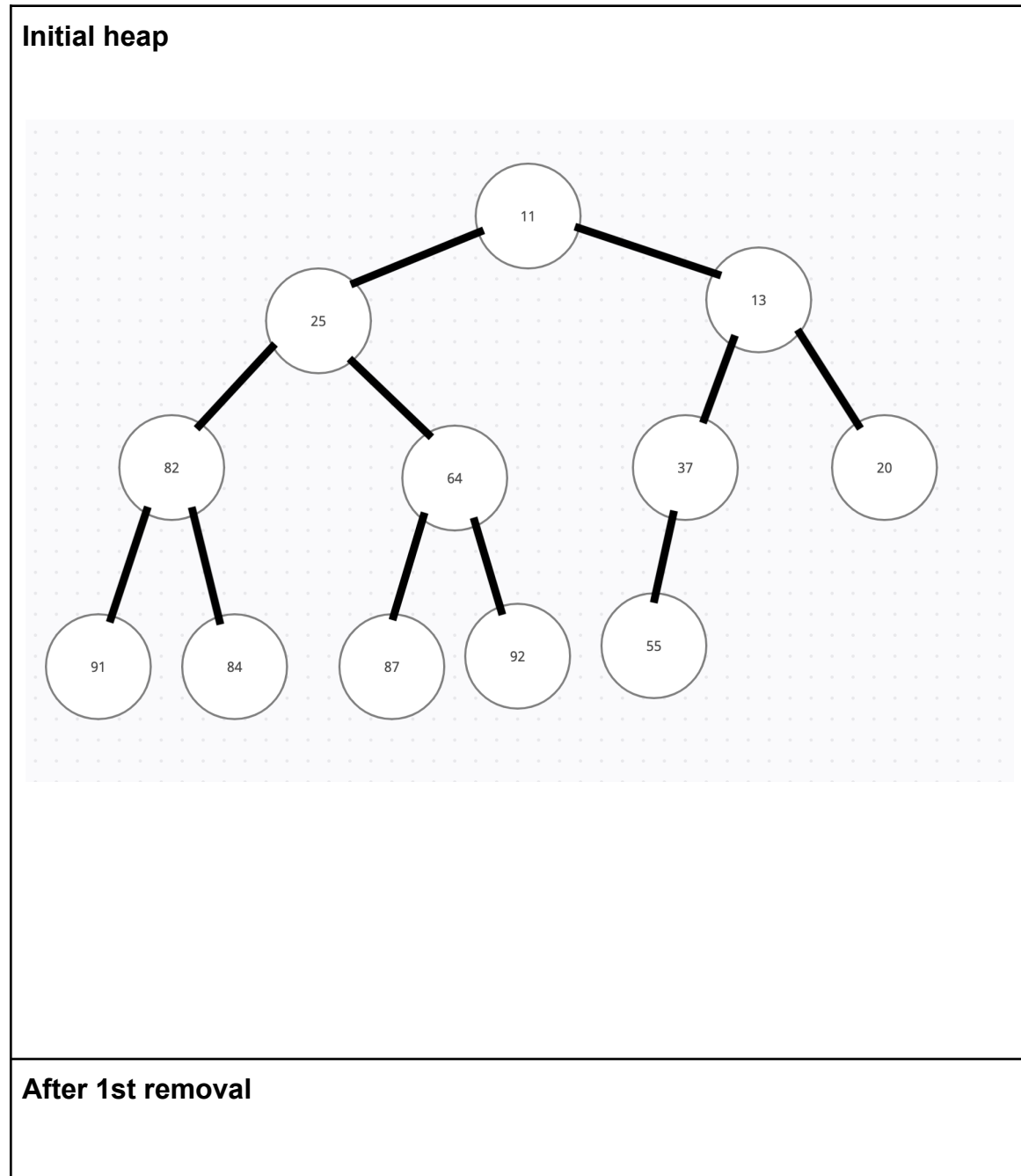


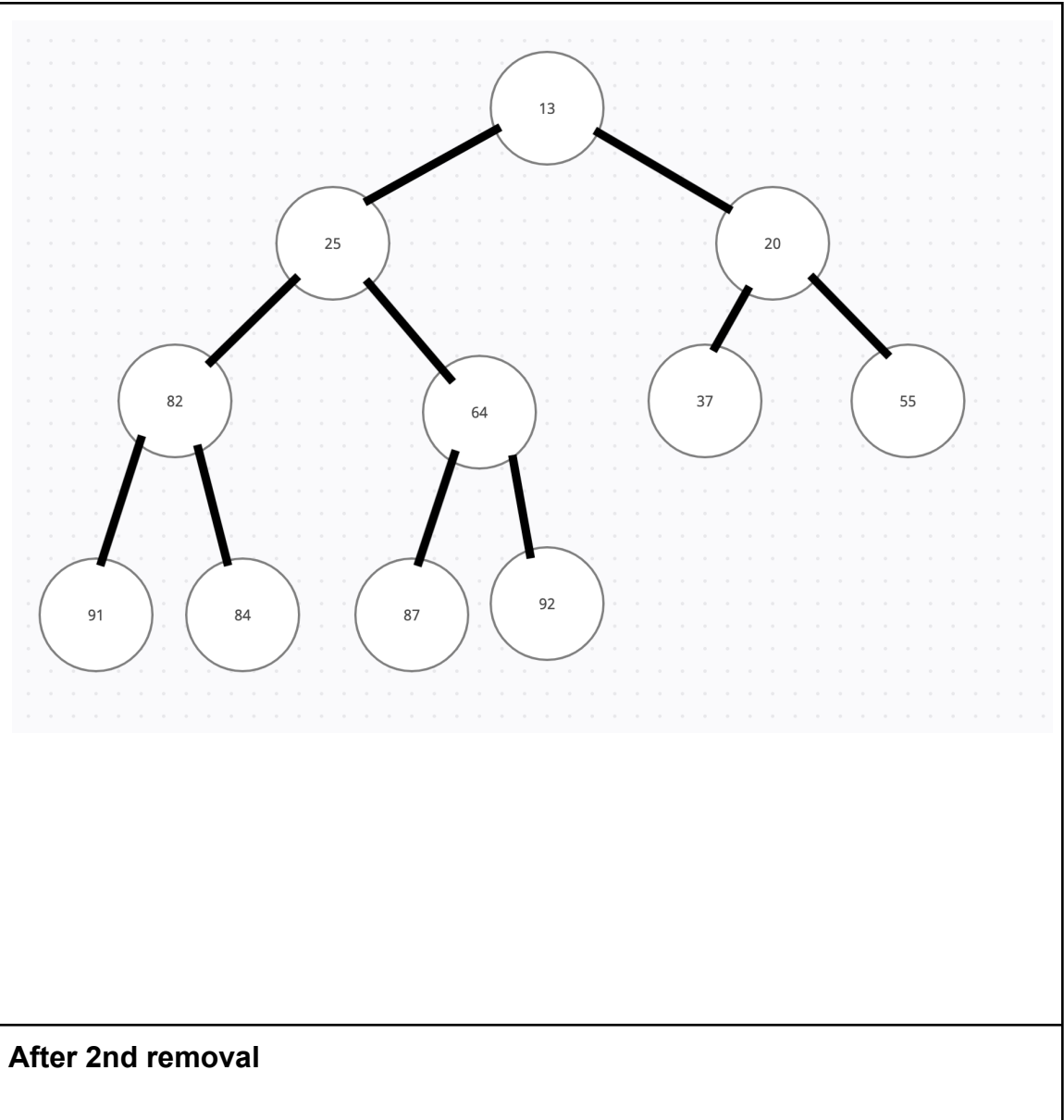


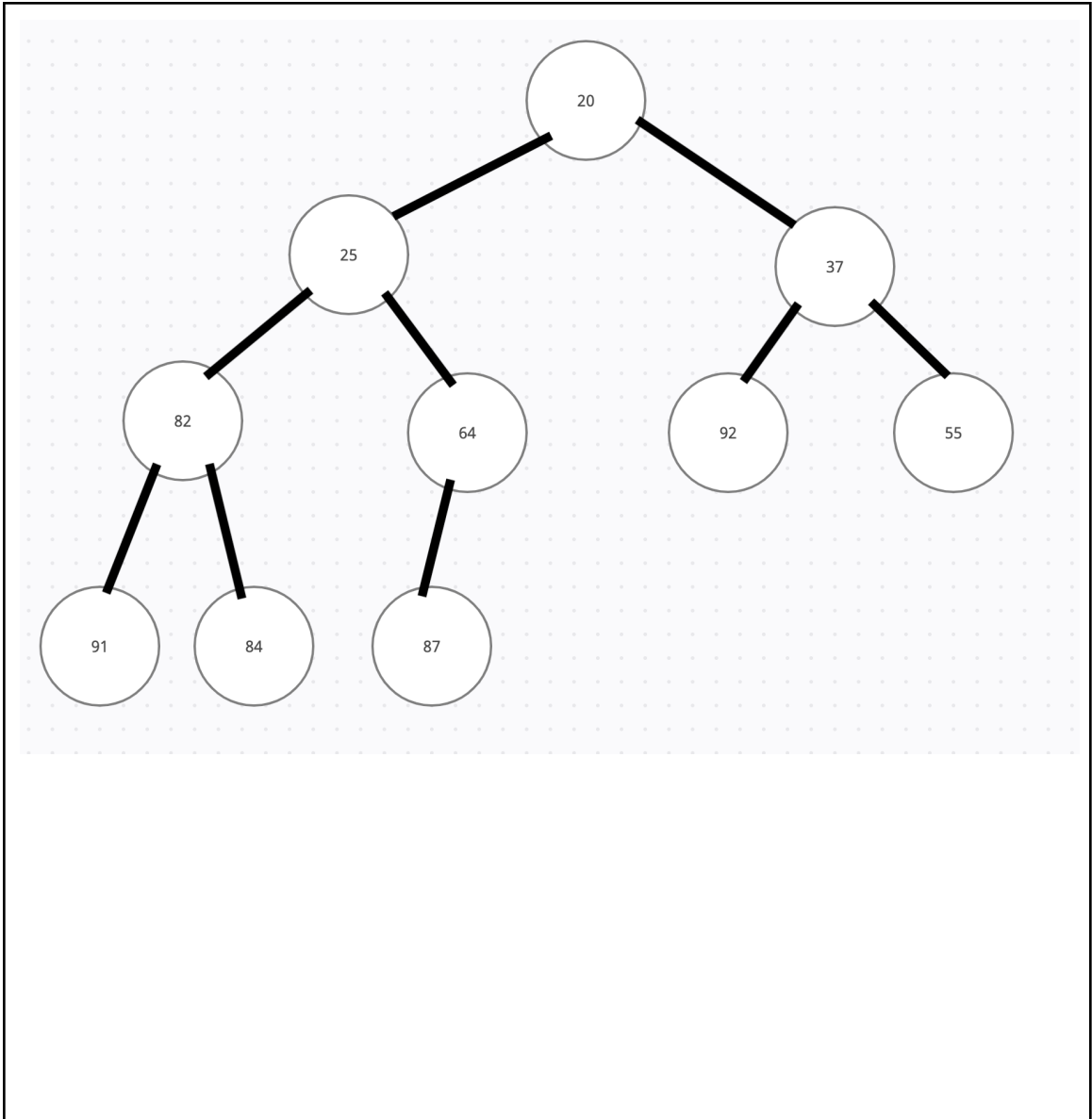
2. Remove the top element 5 times from the given **binary min-heap** and draw the tree representations of the initial heap and the heap after **each** removal.

Array representation of the initial heap:

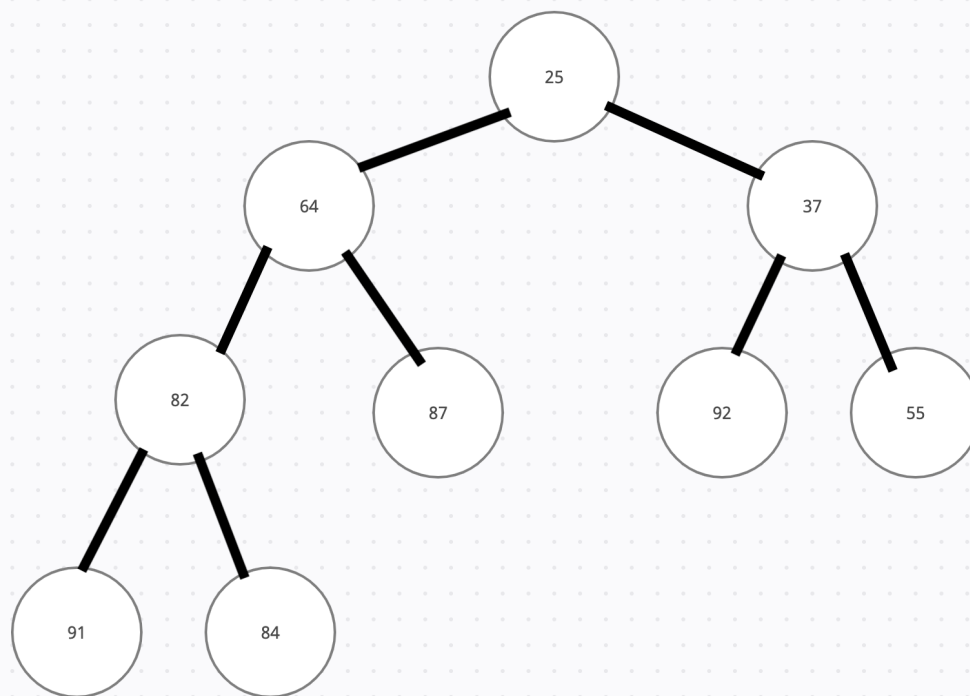
[11, 25, 13, 82, 64, 37, 20, 91, 84, 87, 92, 55]



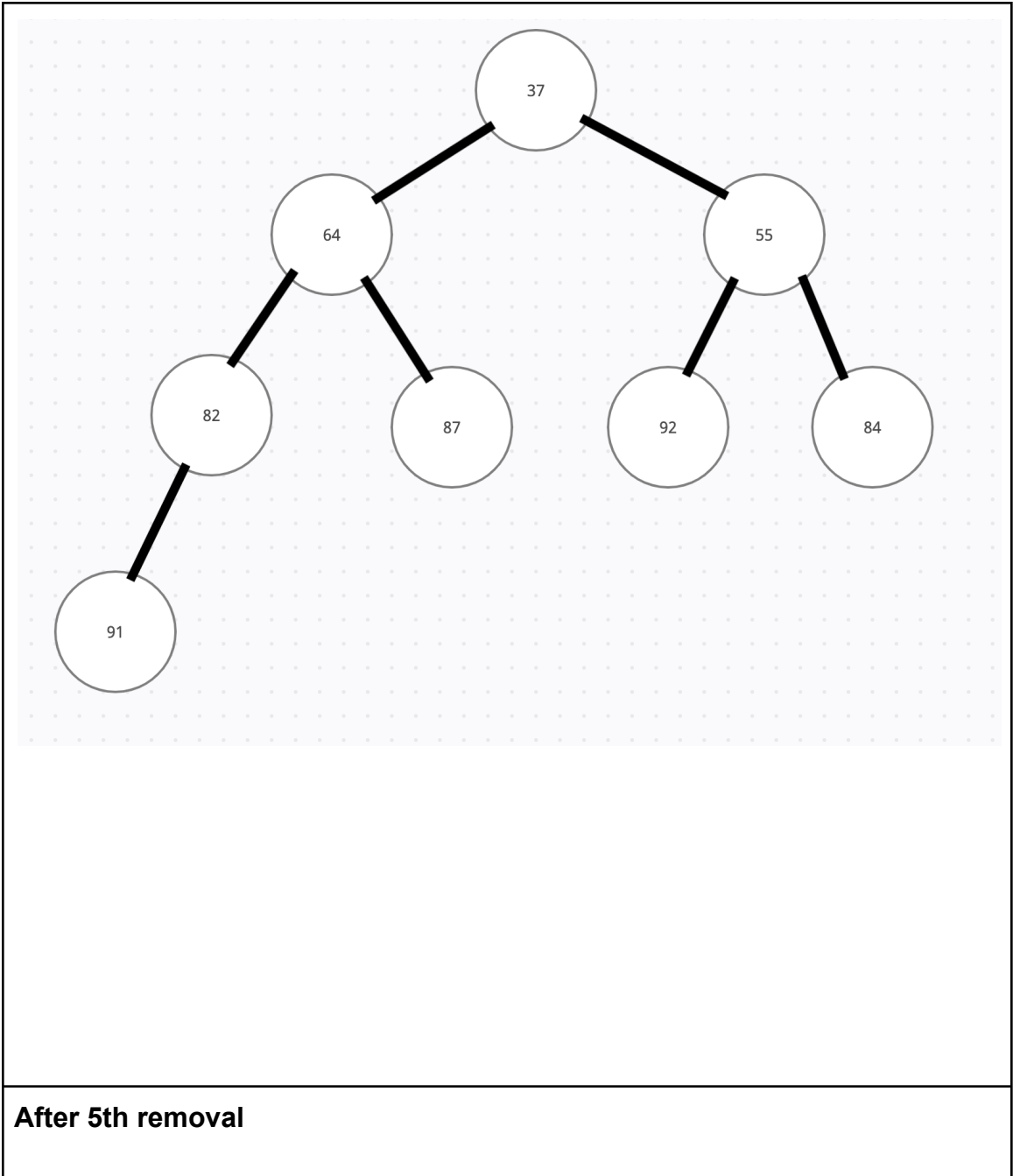


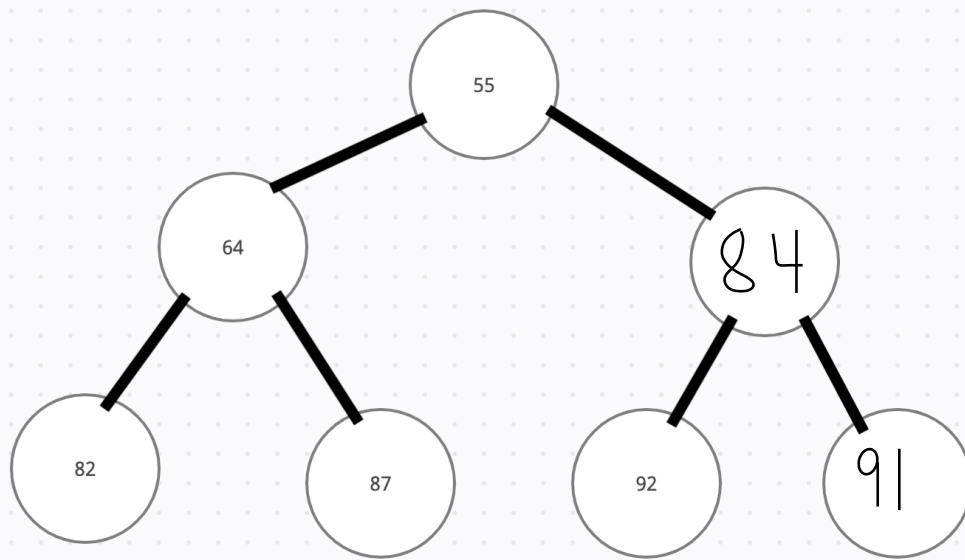


**After 3rd removal**



**After 4th removal**



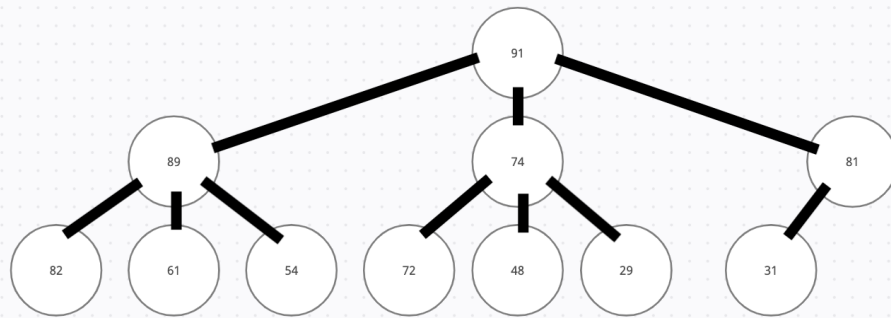




3. Draw the tree representations of the d-ary max-heaps from the following array representation. Choose  $d = \{3, 4\}$ .

Array representation: [91, 89, 74, 81, 82, 61, 54, 72, 48, 29, 31]

### 3-ary



### 4-ary

