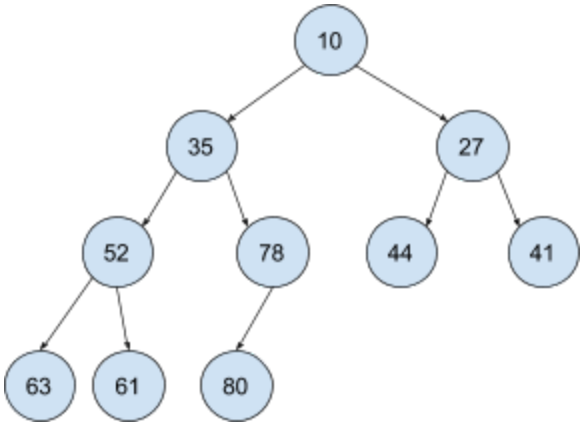
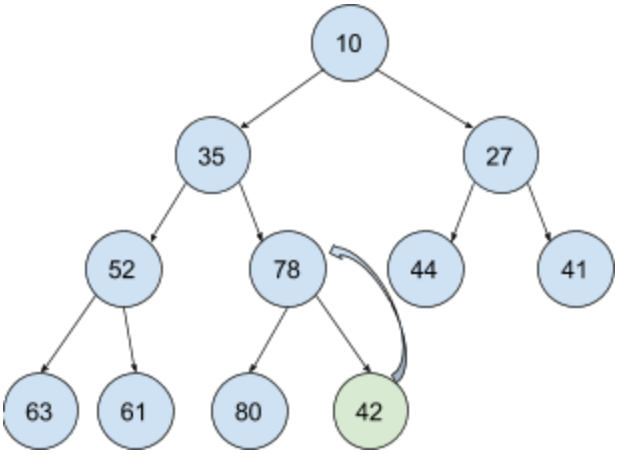
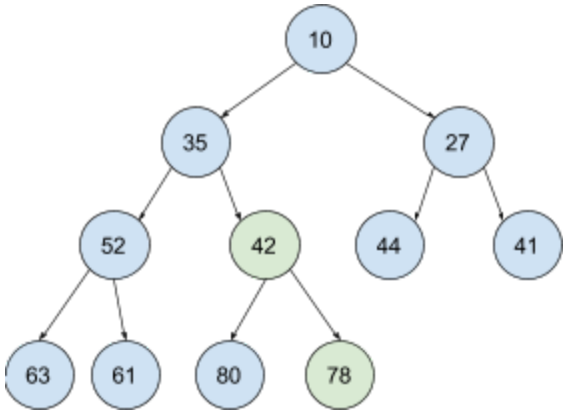
First Heap initially:



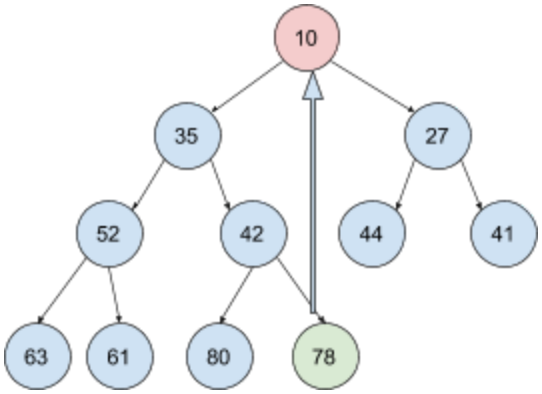
This is correct because all nodes are smaller than their children

First Heap After 42 is inserted:
First 42 is added as a leaf node (in the leftmost available spot). But, since it is smaller than
Its parent, 78, the two are swapped…
Now, 78 is the child of 42, which is allowed because 78 is larger, and 42 is the child of 35, which is allowed because 42 is larger than 35.

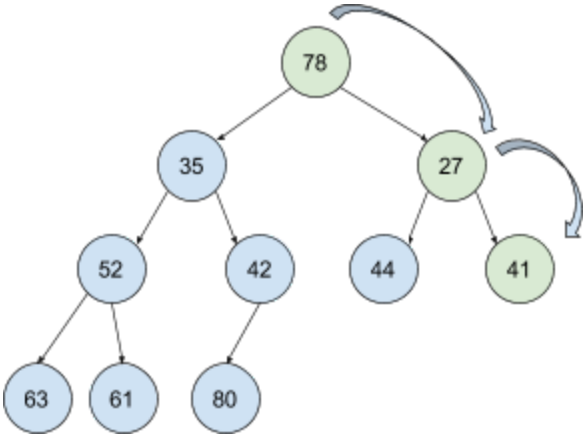
1. 

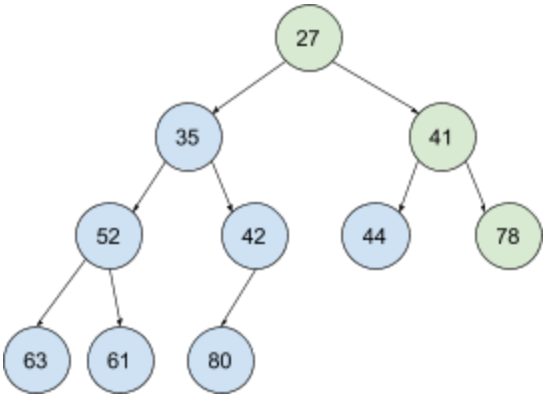
2. 

First Heap after smallest element is removed (42 already added):
First, 78, the leftmost recent leaf node is moved to the root position and the smallest node, 10, is removed



Then, 78 swaps with its smallest children, trickling down so that no nodes are larger than their children

1. 

2. 

The second heap is not a correct binary min-heap. It violates the property that the children nodes must be larger than parent nodes because 19 would be the child of 21 (21 is index 0 so its children are at indices 2*0+1 and 2*0+2, aka 1 and 2). Thus 19, index 2, is one of 21's children so it can't be smaller, but it is so the heap is not correct.