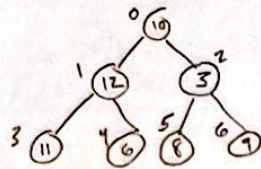


4. (a) [10, 12, 3, 11, 6, 8, 9]

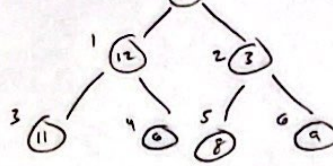
original tree



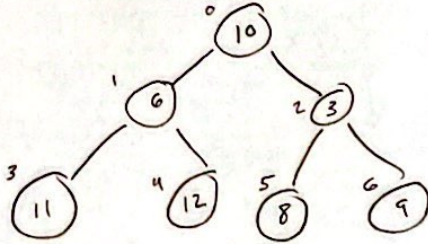
=>

heapify(2)

No change

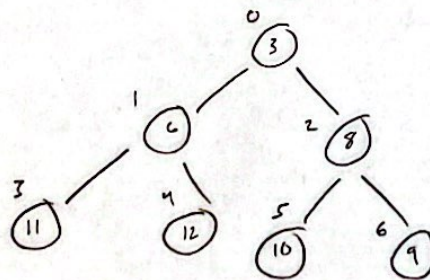
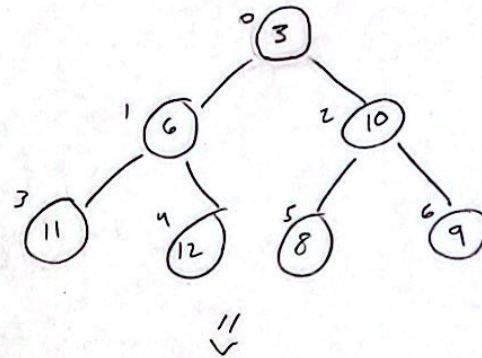


heapify(1) -> swap 6 and 12



=>

heapify(0) -> swap 10 and 3  
swap 10 and 8

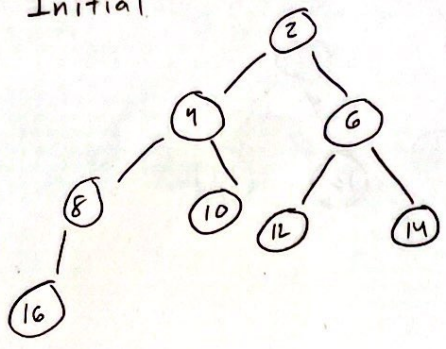


Final tree

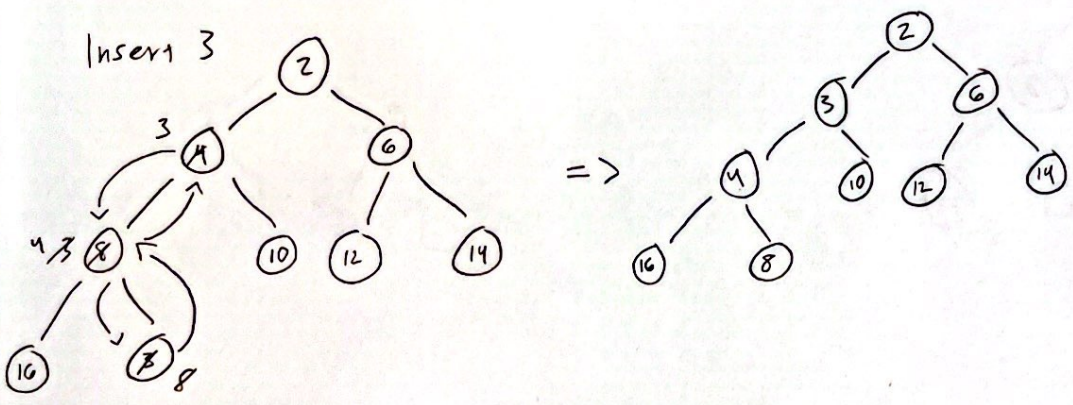


4. (b) [2, 4, 6, 8, 10, 12, 14, 16]

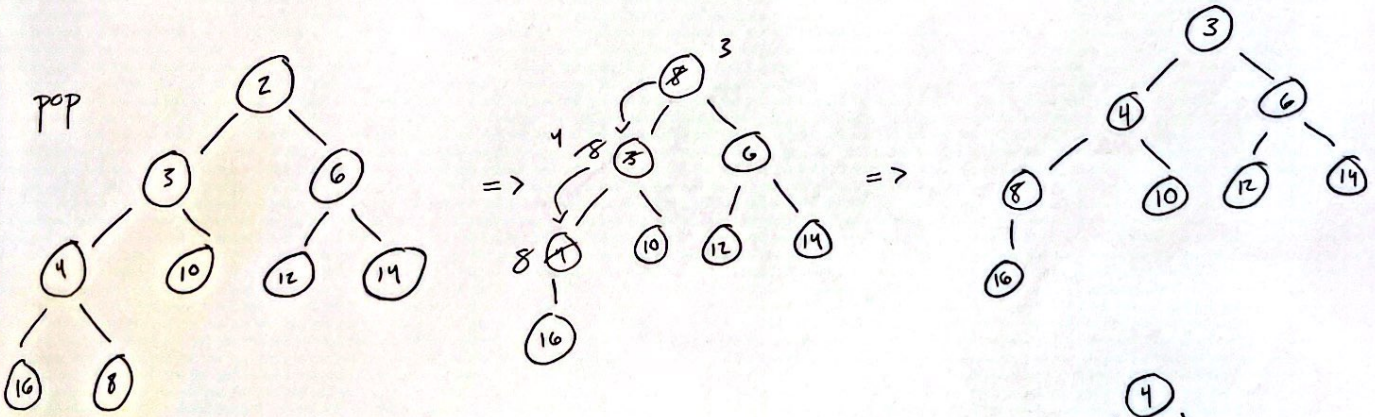
Initial



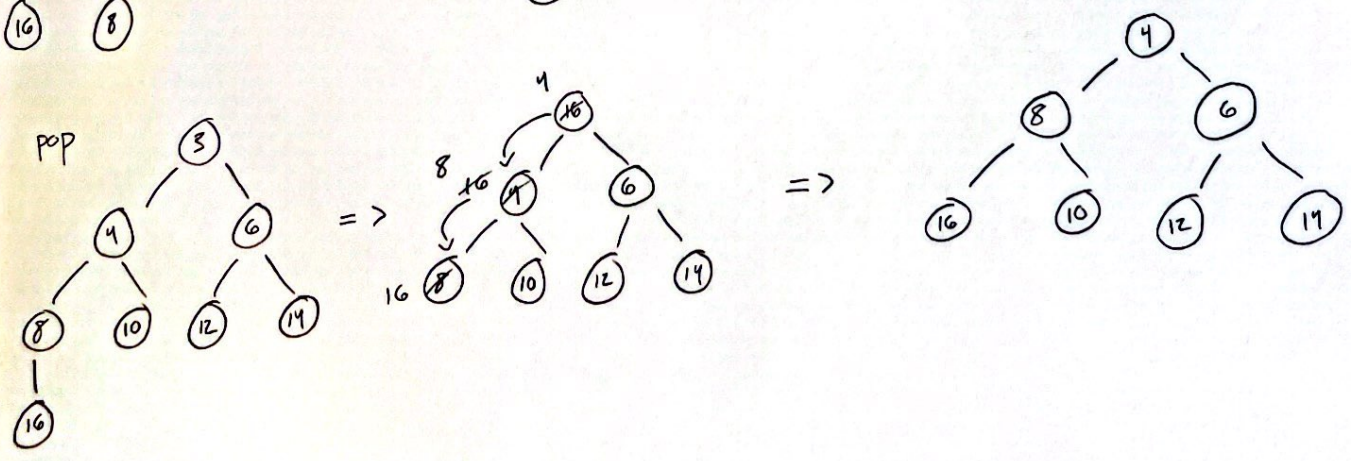
Insert 3



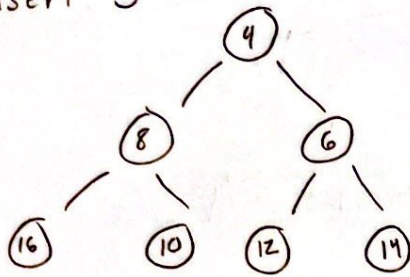
pop



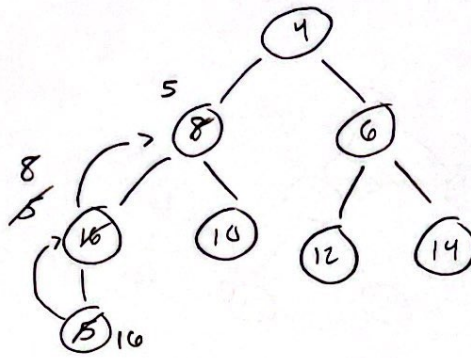
pop



Insert 5



=>



Final tree

