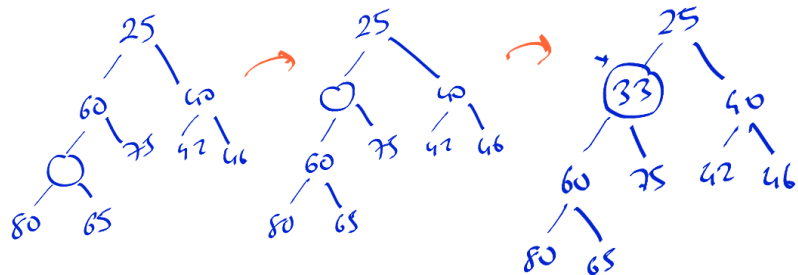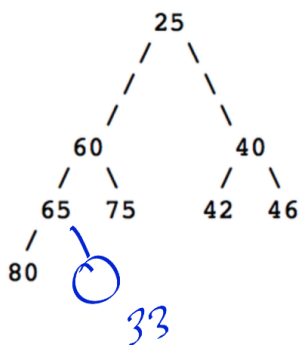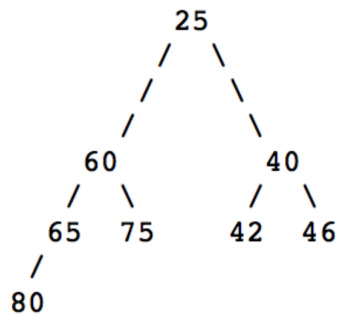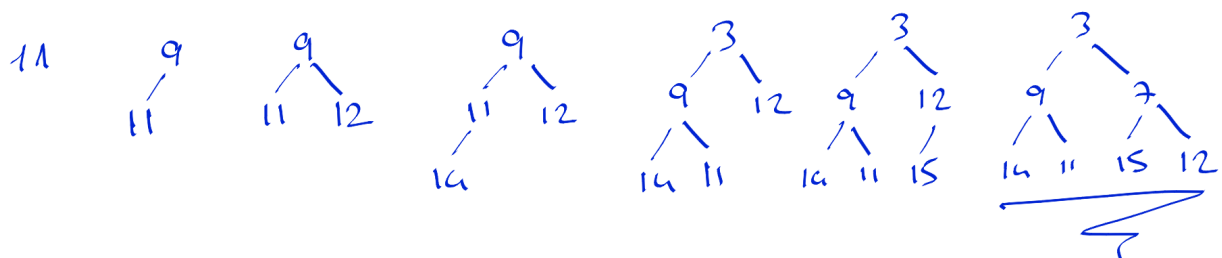**CS 300 Data Structures**
Problem Set #19 – Priority Queue cont.

1. Suppose that you insert 33 into the following heap. What does the heap look like after insertion?

```
        25
       /  \
      /    \
     /      \
    60       40
   /  \     /  \
  65  75   42  46
 /
80
```


2. Draw the binary heap that results from inserting 11, 9, 12, 14, 3, 15, 7

3. Please provide the final state of the binary max heap given below after inserting 71 to the heap.

↙max

	100	80	90	60	70	50	85	13			
0	1	2	3	4	5	6	7	8	9	10	11

	100	80	90	71	70	50	85	13	60		
0	1	2	3	4	5	6	7	8	9	10	11

100
80   90
75 70   50 85
13 60
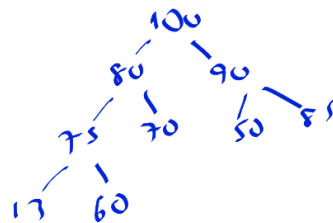
1

4. What is the minimum number of Item exchanges during a delete the maximum operation in a 15-element binary heap containing the keys 1–15.

2

```
            15
      14          13
   5     6     11     12
 1   2   3   4  7  8  9   10
```