2) (5 pts) ALG (Heaps)
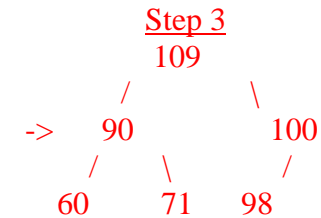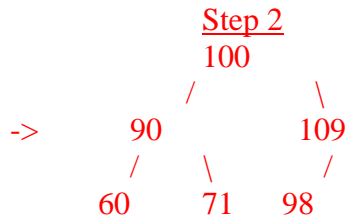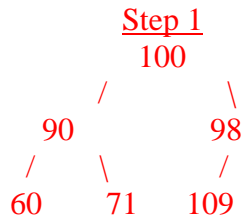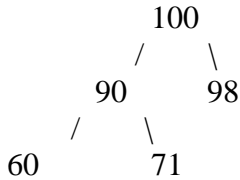
Suppose we are storing integers in a **Max-Heap** using the tree representation of heaps. The following tree shows the Max-Heap after 5 insertions. Show the result of inserting 109 into this heap, showing each step of the process. (Hint: You should draw 3 separate tree pictures.) Then, place each value from the resulting heap of 6 values into the array in the appropriate indexes corresponding to how a heap is typically stored in an array.

```
          100
         /    \
       90      98
      /   \
    60     71
```

```
   Step 1                    Step 2                    Step 3
     100                       100                        109
    /      \                  /      \                   /      \
  90        98      ->      90        109      ->     90        100
 /  \      /               /   \      /              /   \      /
60   71  109             60    71   98             60    71   98
```

Index	1	2	3	4	5	6
Heap Value	109	90	100	60	71	98

Grading: 1 pt for each drawing, 2 pts for correct array, 1 pt for minor error in the array, 0 pt for major error in array.