3) (5 pts) ALG (AVL Trees)

Insert the following integers into an AVL tree in the given order. Whenever an insertion causes the tree to become unbalanced, rebalance it immediately before proceeding with the next insertion. Continue this process, rebalancing as needed, until all elements have been added. Put a box around the state of the tree after each of the bolded-underlined elements are inserted. (Each of these pictures will be worth 1 point.)
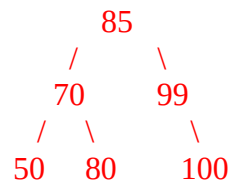
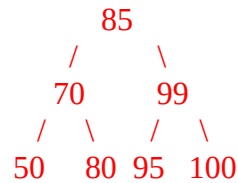50, 80, **70,** 99, **85**, **100,** **95** and **84**

After 70 is inserted and rebalanced, tree is
```
      70
     /  \
   50    80
```
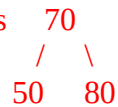
After 85 is inserted and rebalanced, tree is
```
       70
      /    \
    50      85
           /  \
         80    99
```
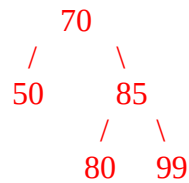
After 100 is inserted and rebalanced, tree is
```
          85
        /    \
      70      99
     /  \       \
   50    80      100
```

Here is the tree after 95 is inserted:
```
           85
         /    \
       70      99
      /  \    /  \
    50   80 95   100
```

Here is the tree after 84 is inserted:
```
           85
         /    \
       70      99
      /  \    /  \
    50   80 95   100
            \
            84
```
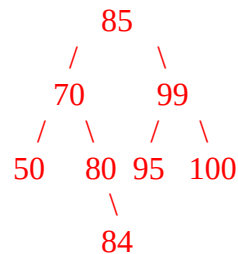
Grading: 1 pt for each of the trees shown above. Tree has to be perfectly correct to get the point.