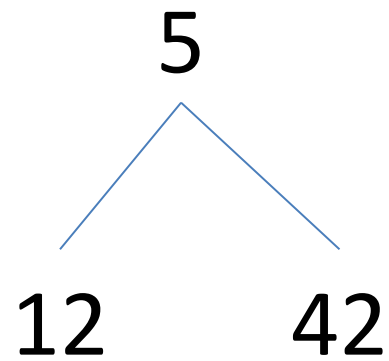
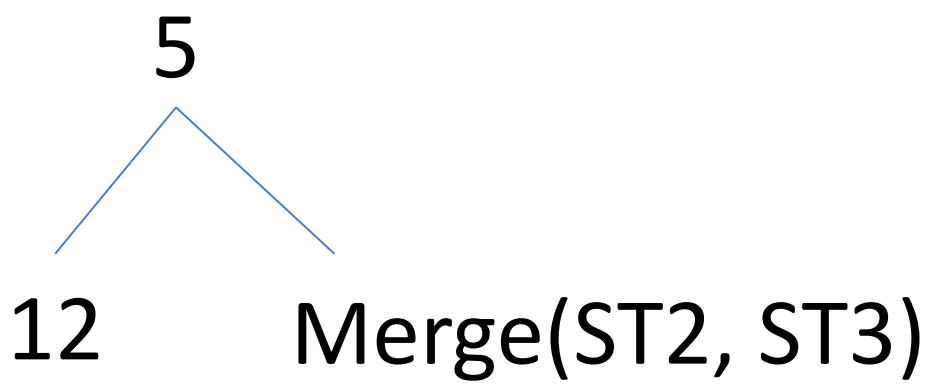
Draw the heap that would result after adding 9 to the given heap H1

H1:



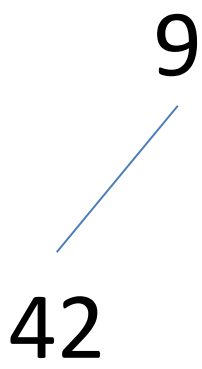
New root ST1 ST2 ST3

5 12 42 9



Merge(ST2, ST3)

New root	ST1	ST2	ST3
9	empty	empty	42

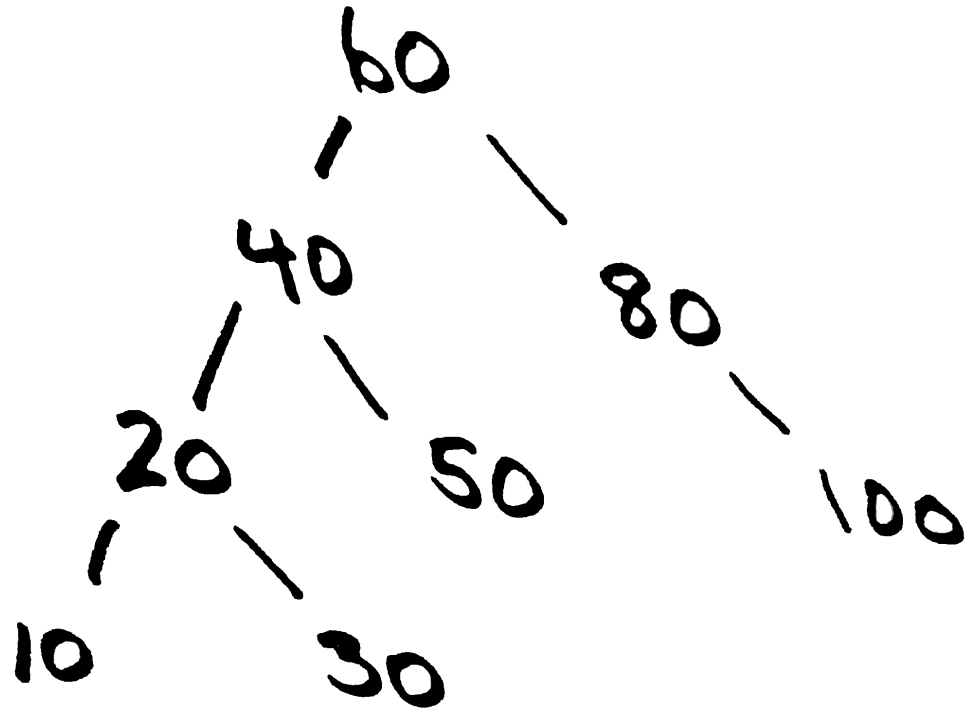


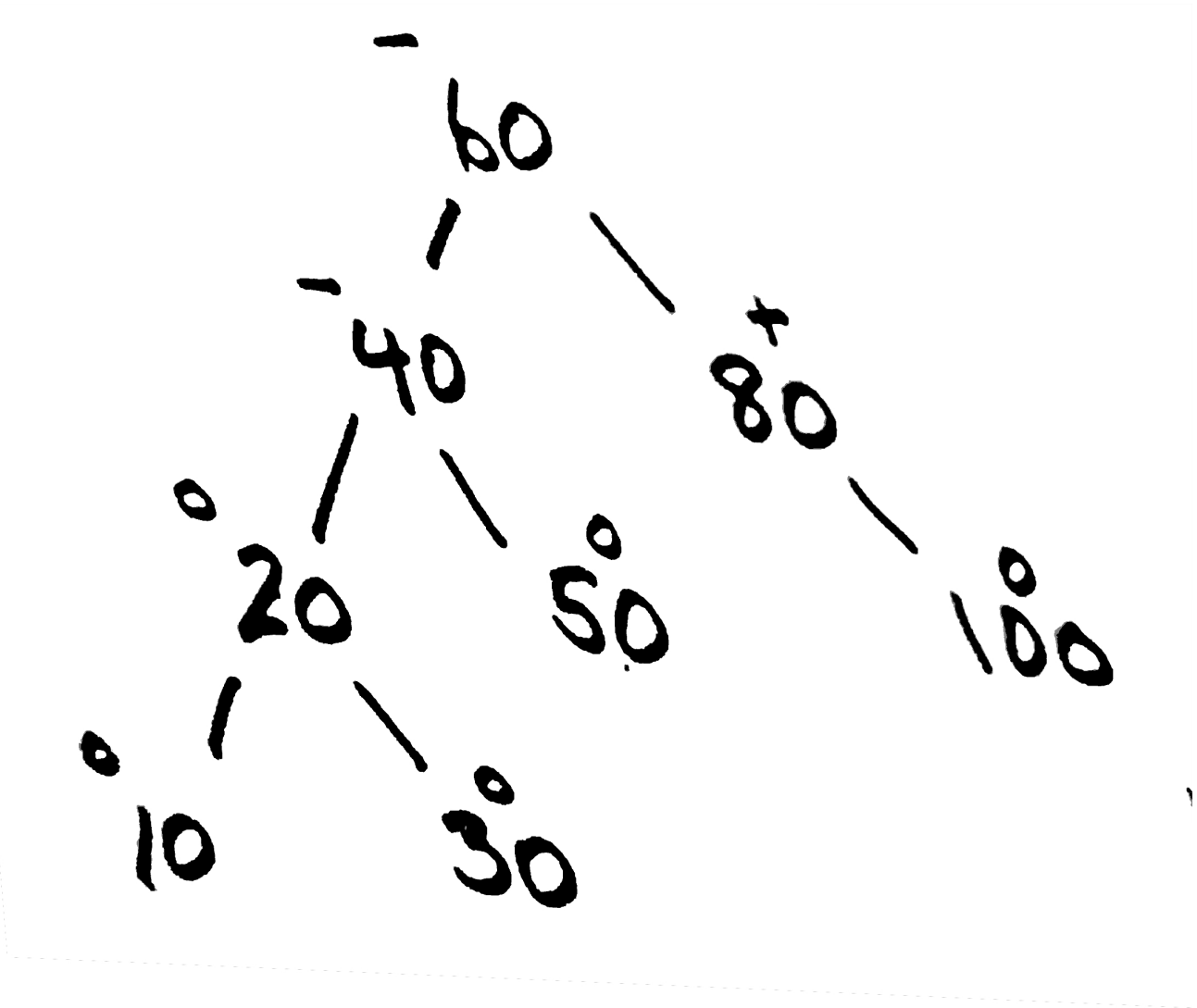
How to test that the answer returned is a valid answer?

- Is it a heap?
- Does the result contain all the elements from the original heap (the same number of occurrences)
- The new element has been added
- No elements in result that weren’t in original

AVL Trees

A binary search tree where, for each node in the tree, the heights of the left and right subtrees differ by at most 1

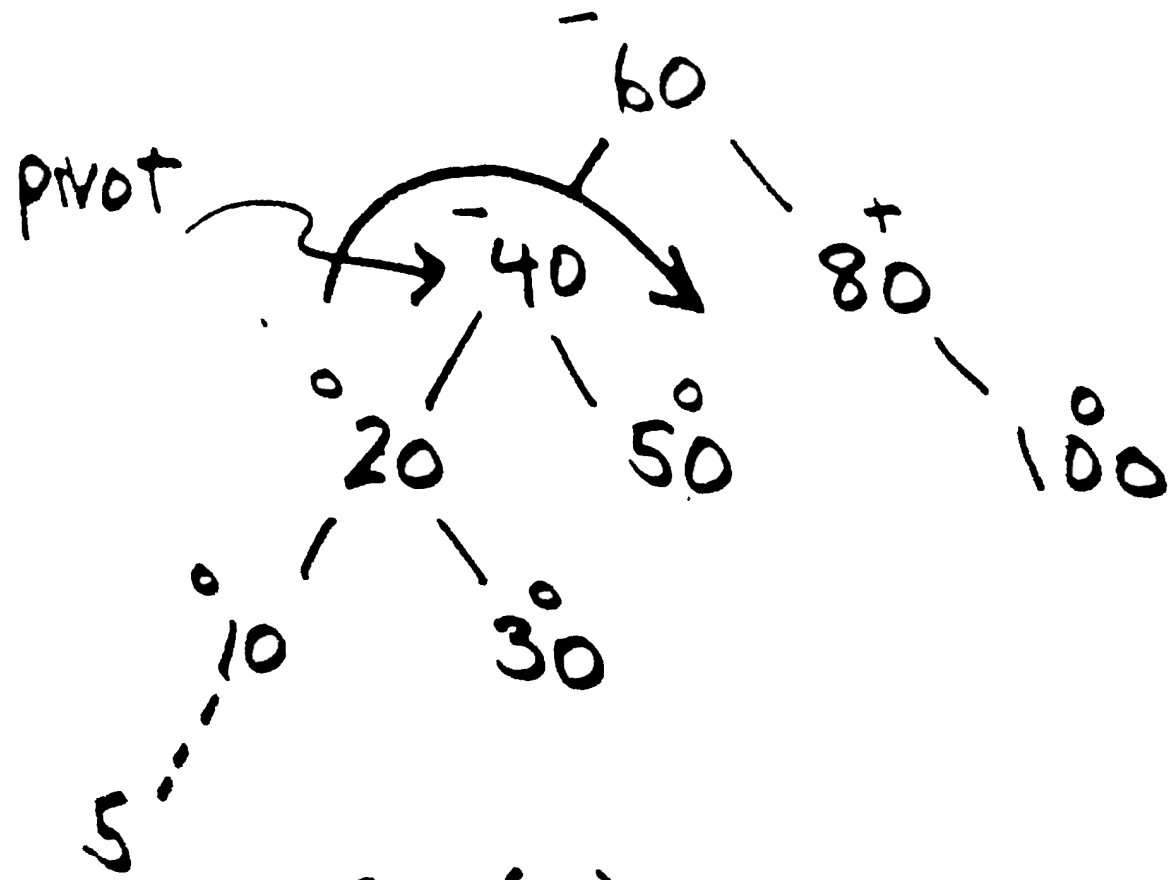




0 – perfectly balanced

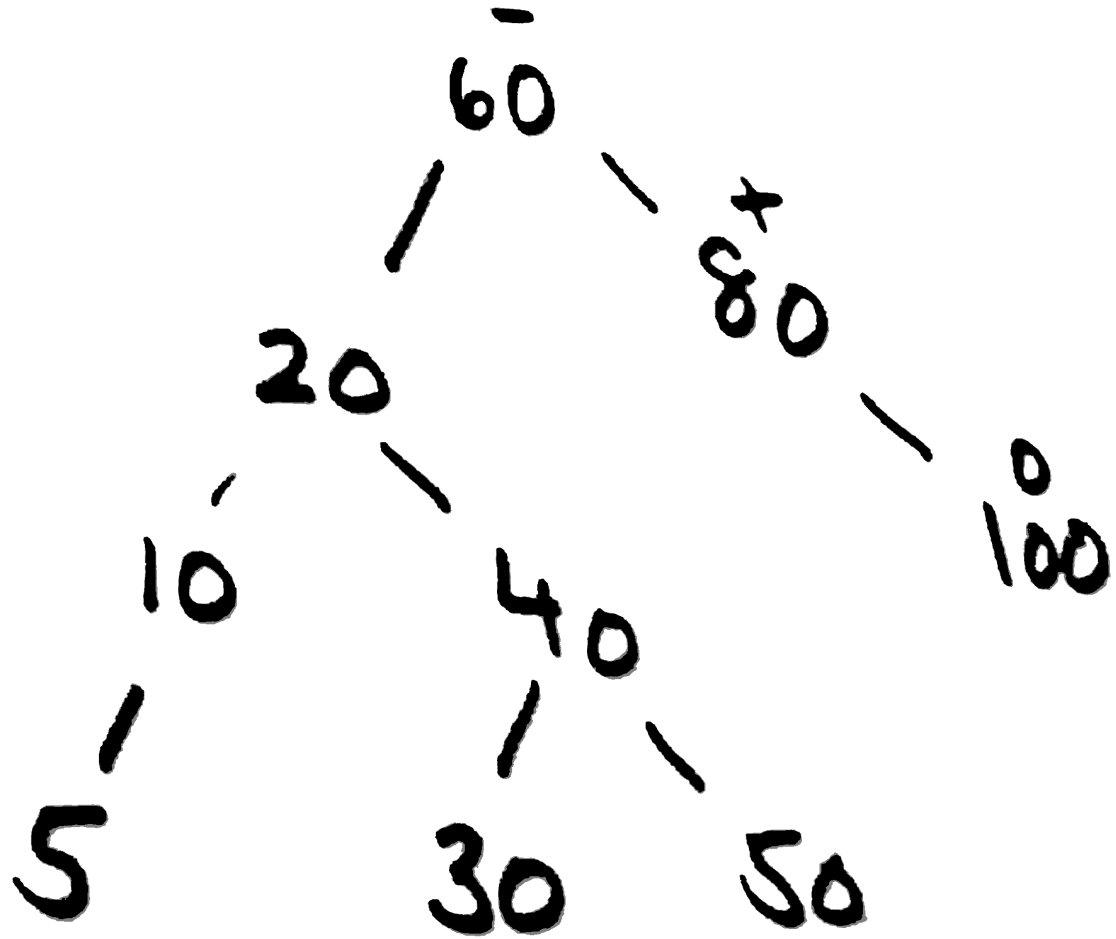
-1 – more on left

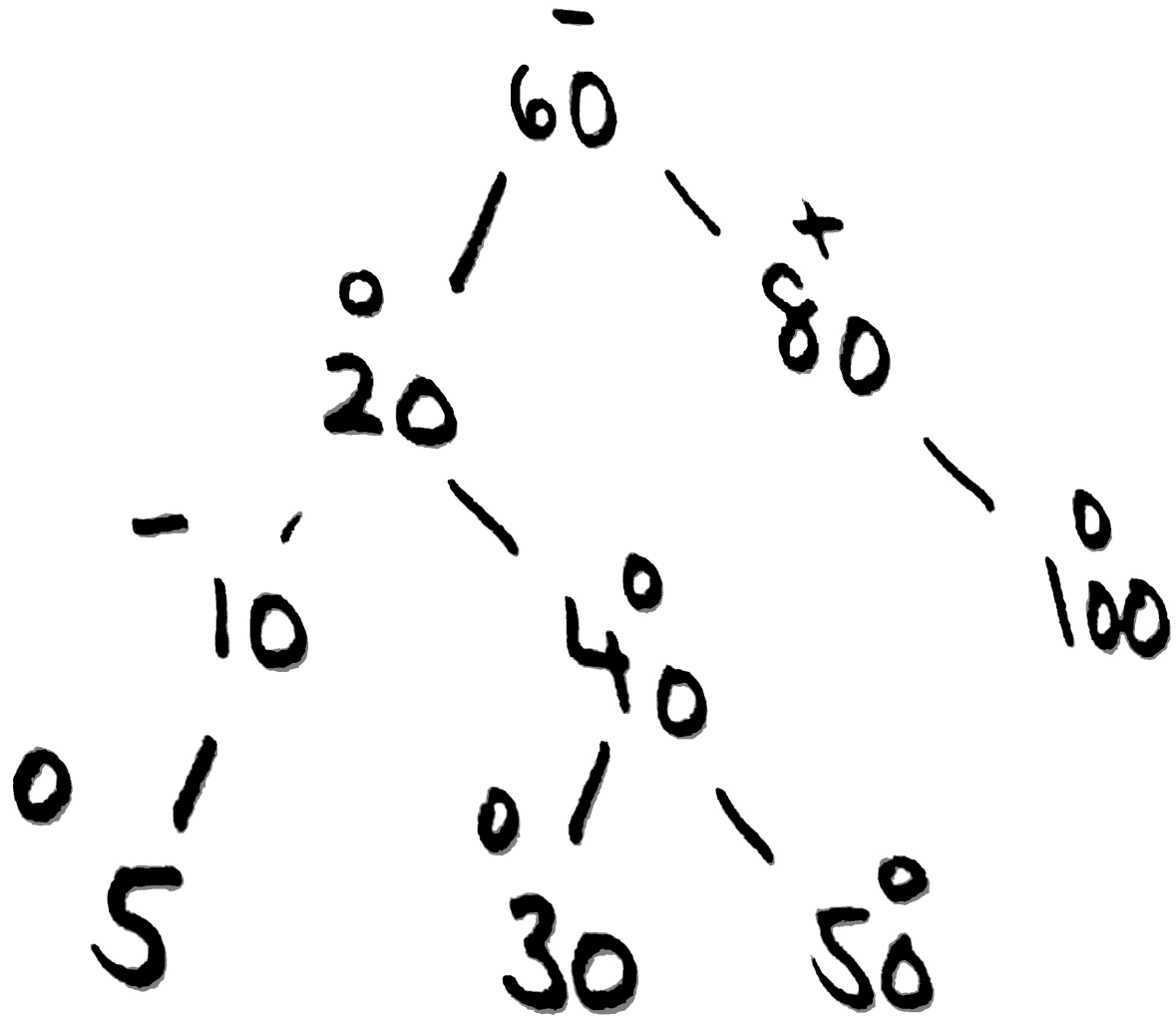
+1 – more on right

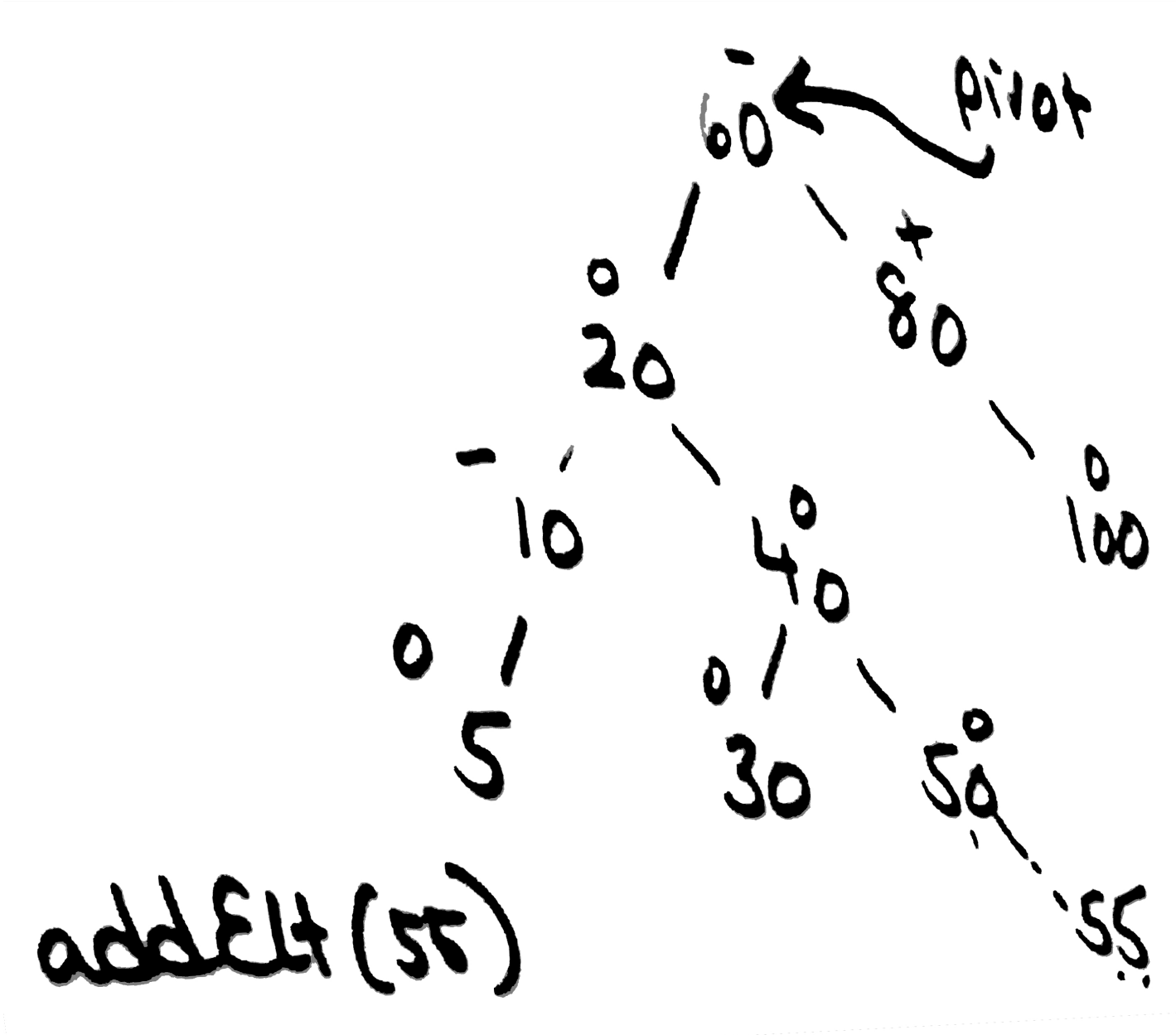


addElt(5)

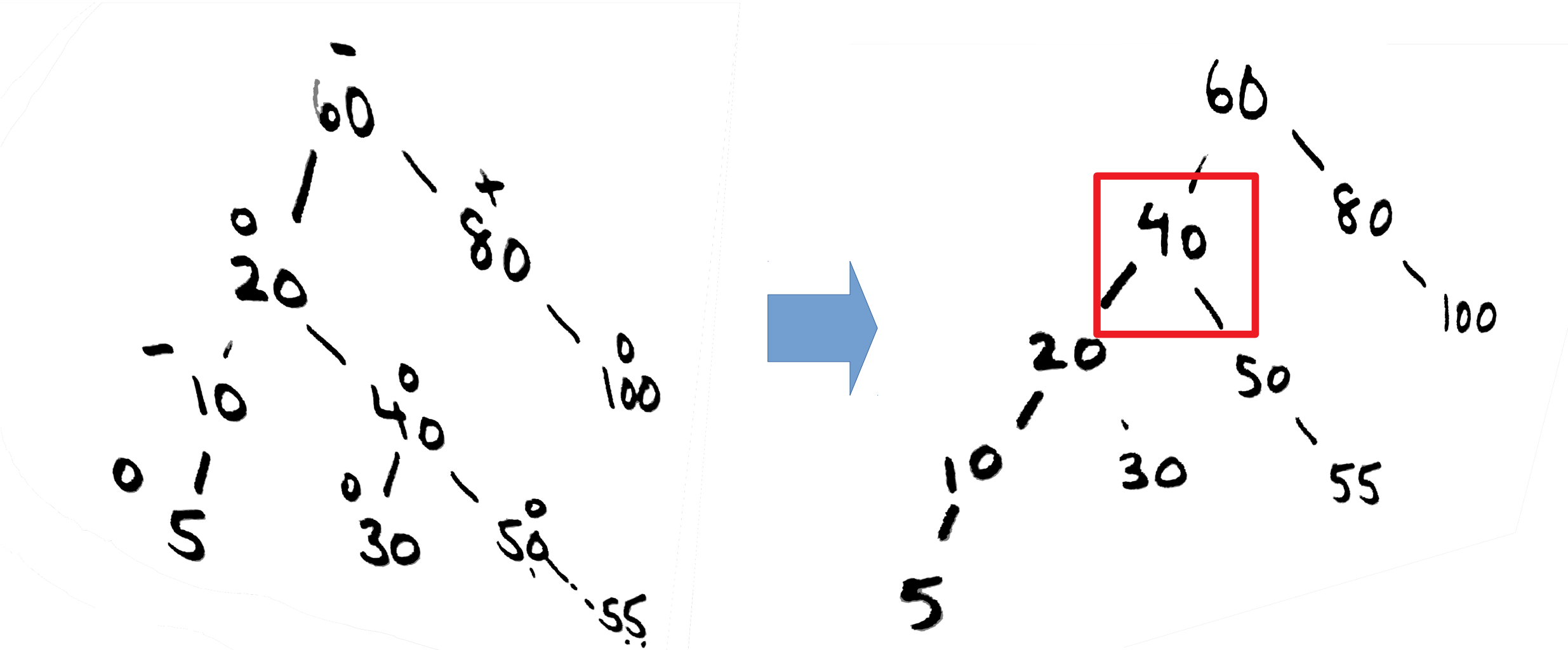
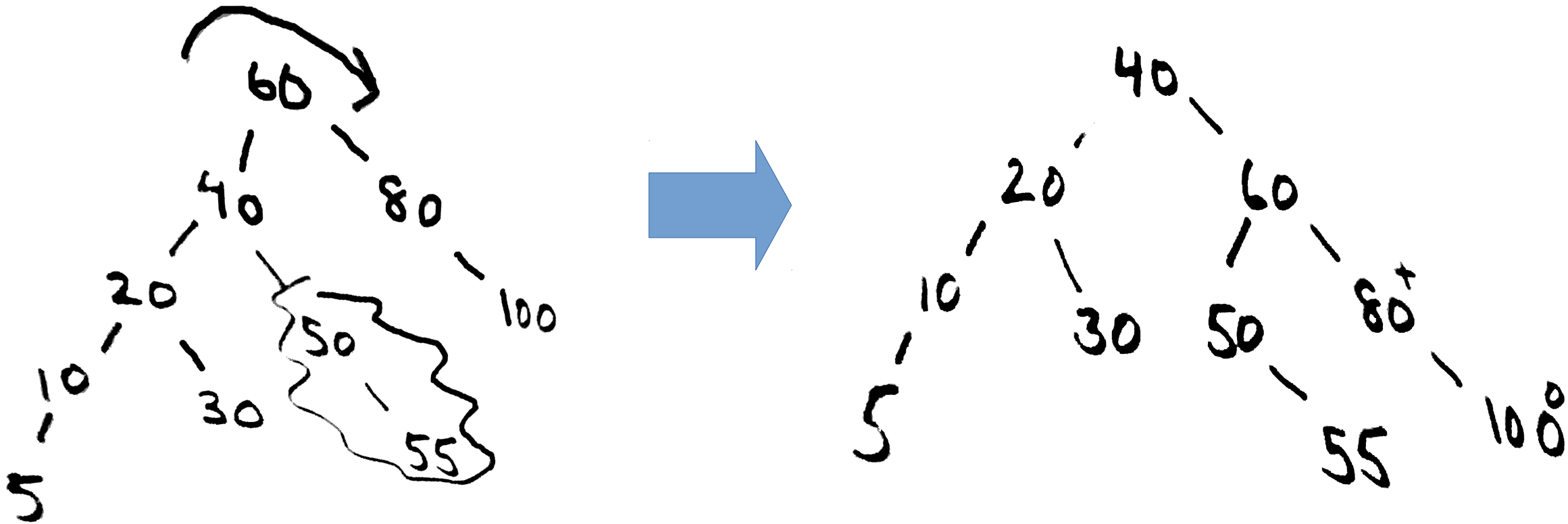
single rotation


60
80
20
0
10
40
100
5
30
50


60
20
80
10
40
100
5
30
50


60
pivot
20
80
-10
40
100
5
30
50
55
addElt(55)

First rotation: rotation on child of pivot



Second rotation: rotation on pivot itself