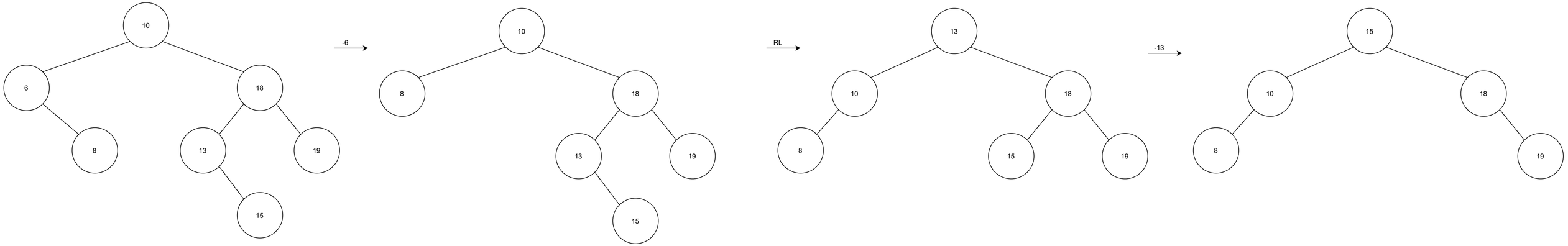
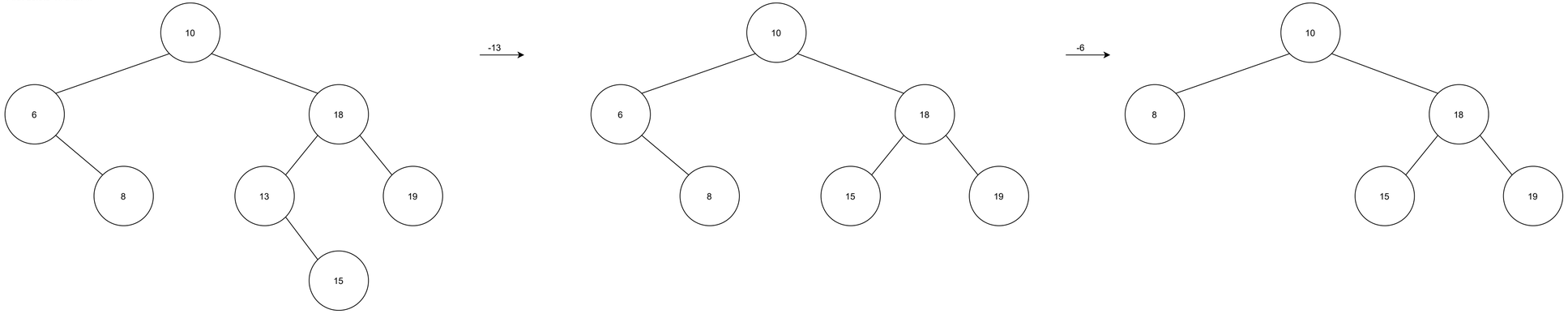
Exercise 2b

First delete 6 than 13:



First delete 13 than 6:



First deleting 6 or 13 and then the other number creates two different resulting AVL-trees. By first deleting the 6, the AVL conditions get violated and the tree must undergo a Right-Left rotation. The 13 becomes then the root and by deleting it, the left-most element of the right branch becomes the new root. By swapping this element to the root, the AVL conditions are maintained.

By first deleting the 13, the AVL conditions are maintained. Deleting then the 6, the AVL conditions are still maintained. Consequently the overall effort is higher by first deleting 6 and 13 because here the tree must undergo a RL-rotation and then swap the root, whereas deleting first 6 than 13 means just deleting the node and moving each one children node up.