



**Steps followed (example with inserting 15):**

1. Insert 15 into the AVL tree (becomes left child of node 20).
2. Check for imbalance at each ancestor (compute balance factor = height(left) - height(right)).
3. At root 10 the balance factor becomes  $-2$  (right heavy) and its right child (20) is left heavy  
 $\Rightarrow$  **Right-Left (RL) imbalance**.
4. For RL imbalance: rotate the right subtree right (rotate around 20 so 15 rises), then rotate the root left (rotate around 10). The right image shows the resulting balanced tree.
5. After rotations the tree is balanced; recompute heights if needed.

**Height:** The resulting tree height is **3**.