

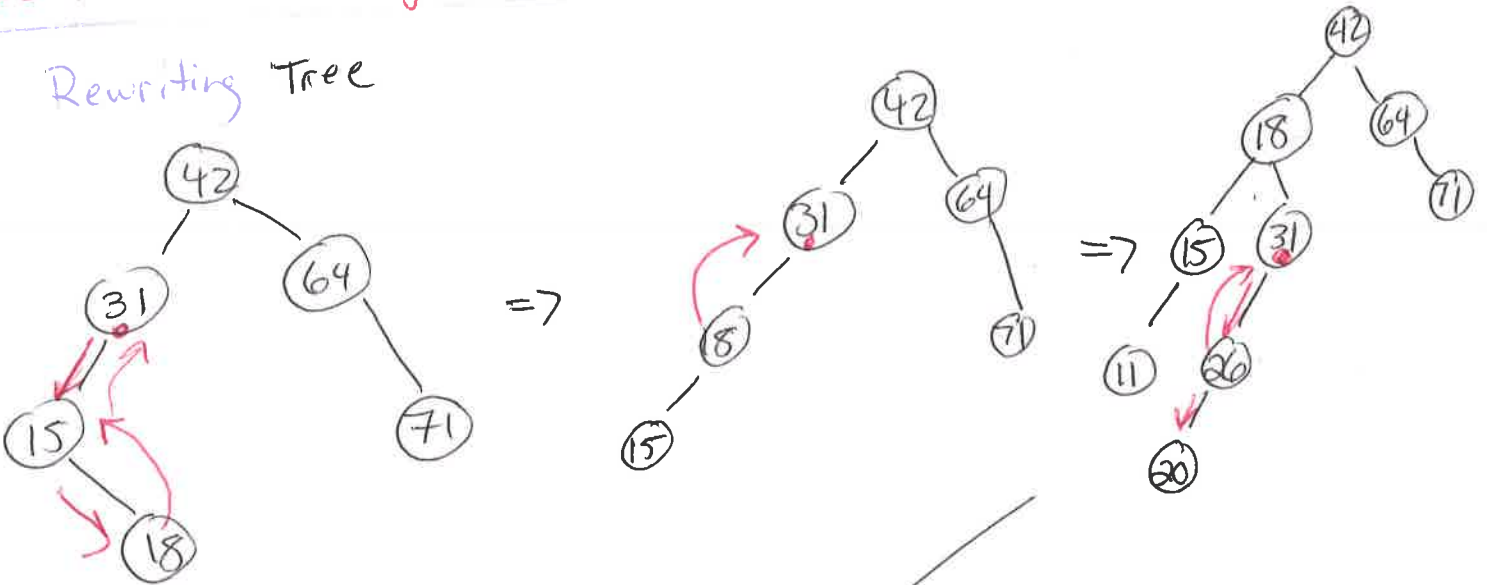
31, 42, 64, 15, 71, 18, 11, 26, 20

Step 1



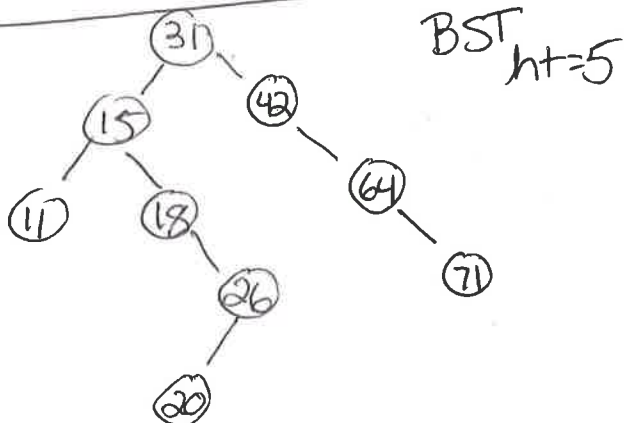
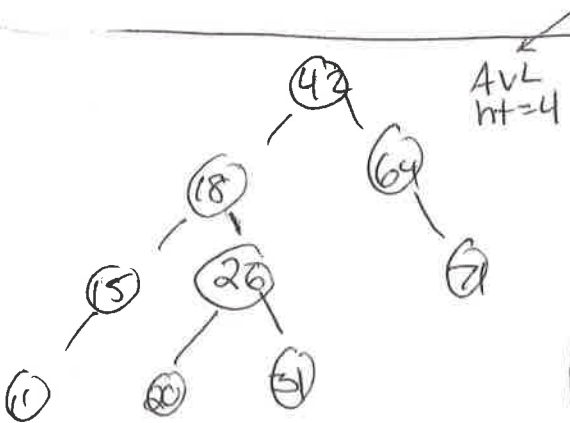
31 is a problem (last two steps are to the right) \Rightarrow single rotate left
 Right subtree has height 2
 Left subtree has height 0

Rewriting Tree

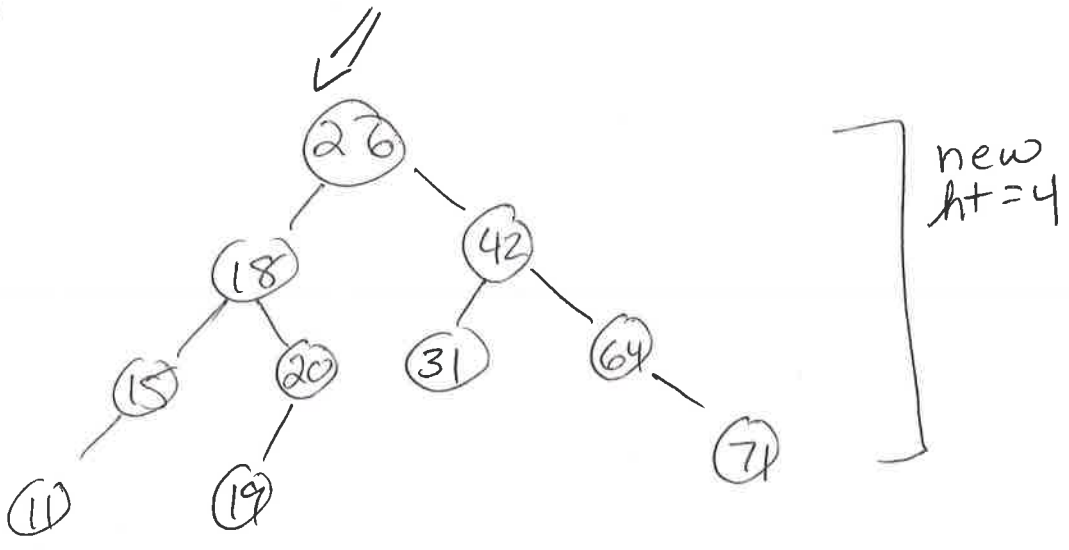
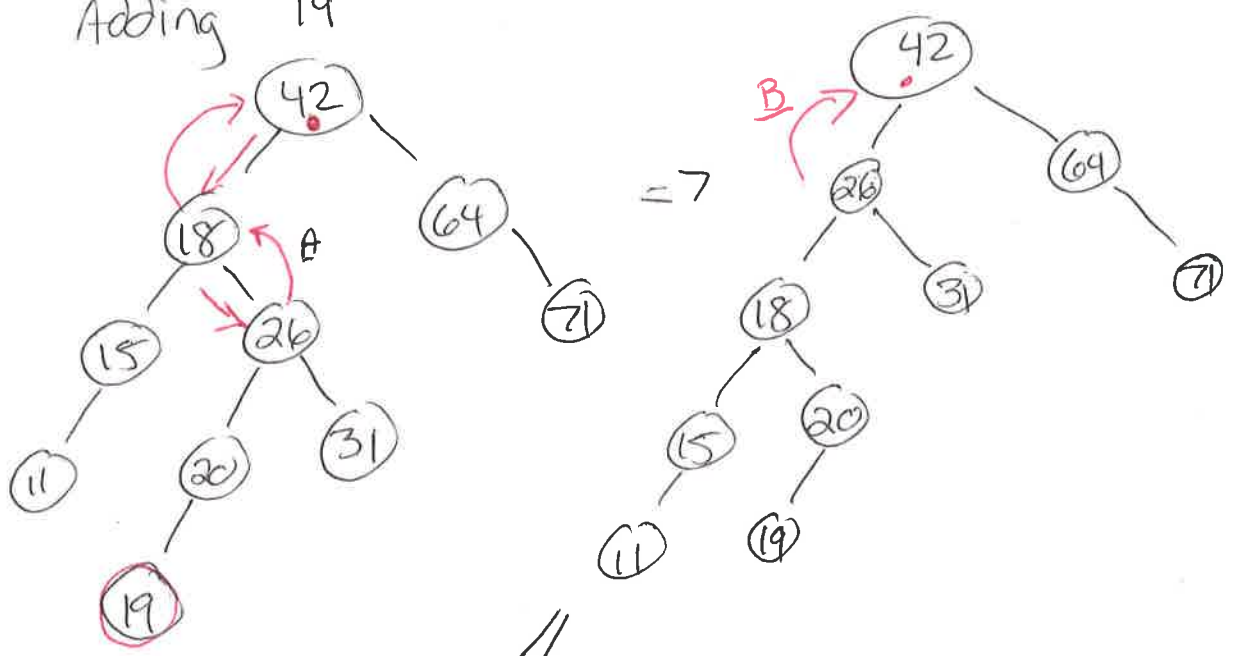


At 31, left, then right
 Right - 0
 Left - 2
 \Downarrow
 double rotate

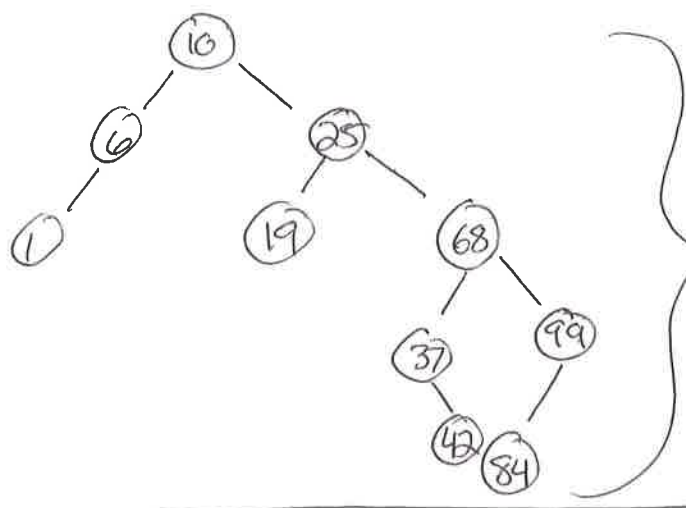
At 31, left, left so
 Right - 0
 Left - 2
 single right rotate



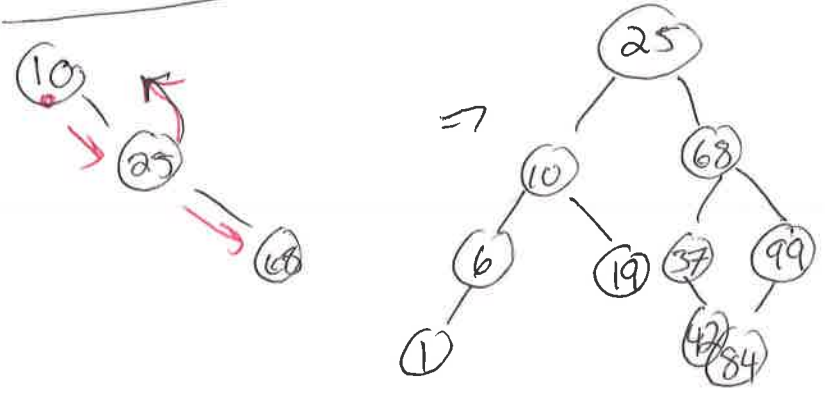
Adding 19



10, 25, 68, 19, 37, 99, 84, 6, 1, 42
"vanilla"
BST

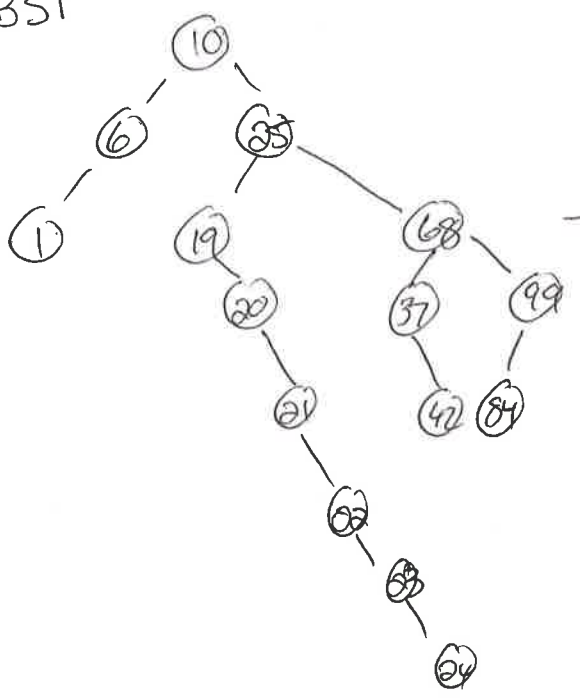


"vanilla"
BST
ht = 5
10 nodes
optimal ht. = 4



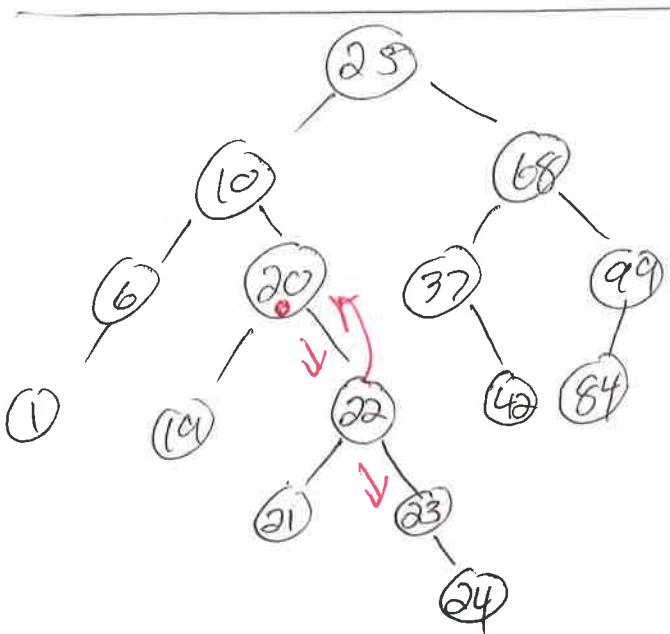
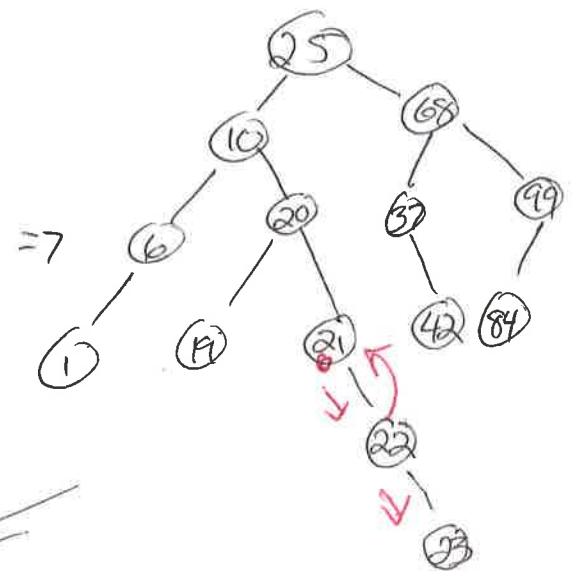
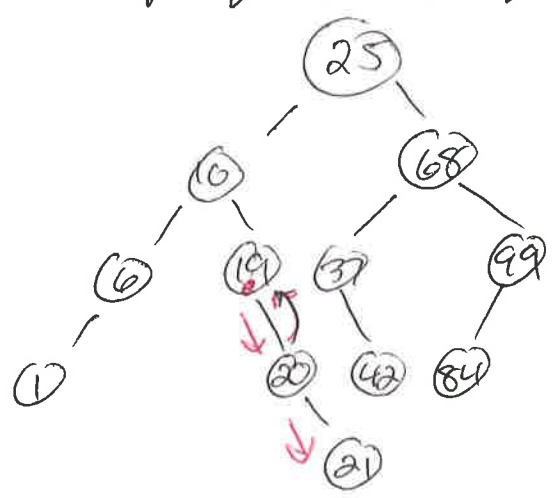
AVL BST
ht = 4

add 20, 21, 22, 23, 24
new "vanilla"
BST

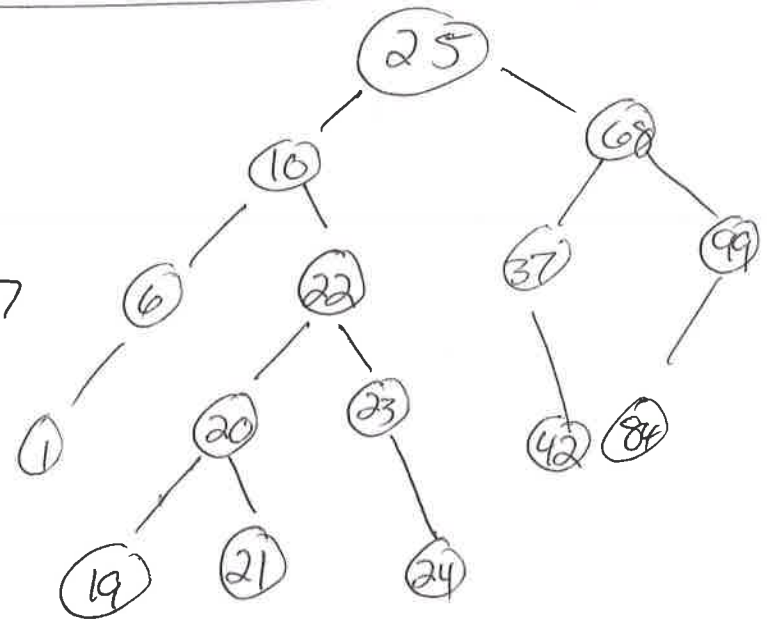


"vanilla"
BST
ht = 8
optimal
w/ 15
nodes
ht = 4

adding 20, 21, 22, 23, 24 to AVL BST



=>



AVL At = 5