

$$\begin{aligned}
 N_h &= 1 + N_{h-1} + N_{h-2} \\
 &\geq 1 + 2N_{h-2} \\
 &\geq 2N_{h-2} \\
 &= \Theta(2^{h/2})
 \end{aligned}$$

$$h < 2 \lg n$$

AVL insert:

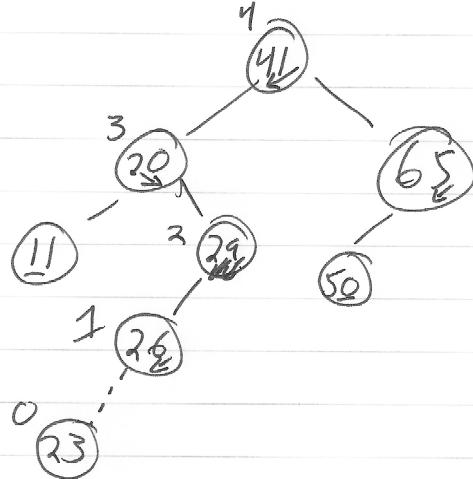
- ① simple BST insertion
- ② Fix AVL property *

from changed node up

- suppose x is lowest node that is not AVL

- assume $x.right$ higher (continued on next page)

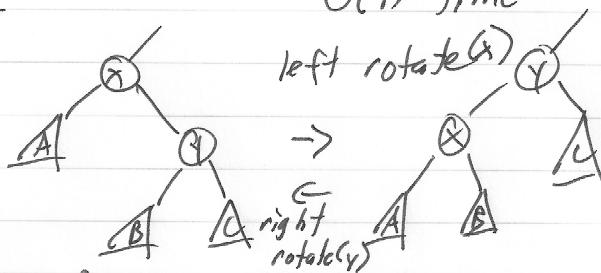
Example



Insert (23)

- ③ doubly left heavy

Rotations



In-order-traverse: AxByC = AxByC