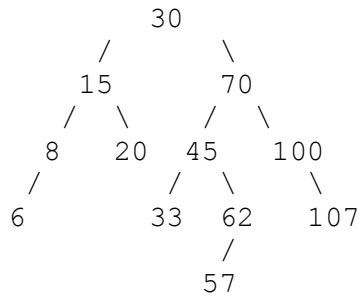
3) (10 pts) ALG (AVL Trees)

This question deals with the AVL Tree shown below:



(a) (7 pts) How many restructure operations (a single restructure operation is either a single or double rotation) would occur if each of the following items was deleted? Consider each item separately as being the only item being deleted from the tree shown above. (Note: It's possible that the answer to some parts is 0.)

Item to Delete	**Number of Restructure Operations**
6	
20	
33	
57	
62	
100	
107	

(b) (3 pts) What is the fewest number of consecutive insertion operations that would need to occur to force a rebalance at the root node of the given tree in the picture? (Hint: In order for this to occur, there has to be the requisite height imbalance at the root node 30, and no other imbalances on the path from the last inserted node to the root.)

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