

1. **AVL Trees** [9 pts].

Use the tree below for the initial state of an AVL tree before each of the following questions/tasks.

- a. (3 pts) Give a key that could be **inserted** that would lead to an imbalance that requires a **double rotation (zig-zag)** case. Many values may exist, list only one: _____ .
 - o Any left or right child of 35 (i.e. 33-34 or 36-43)
 - o Any right child of 61 (62-74)

- b. (6 pts) Show the resulting AVL tree if a **remove(50)** operation is performed. Assume the remove algorithm swaps with the successor of a node, if need be. You **MUST** show what the tree looks like at intermediate steps. This will also help us assign partial credit if your final answer is wrong.

