AA Trees - Validation / Insertion
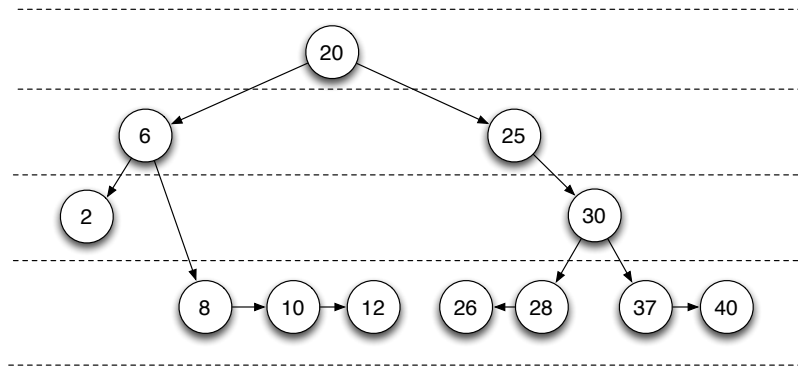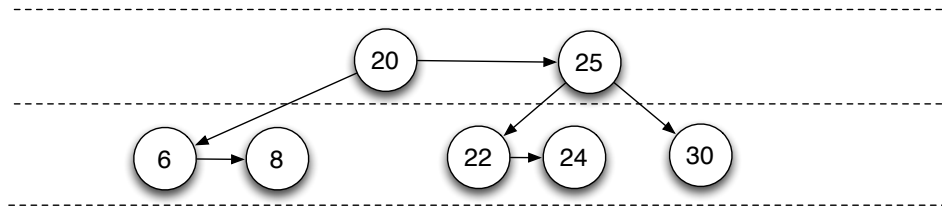
For the following AA tree

List which nodes are invalid and briefly specify the reason.

For the following AA tree

a. Indicate in the figure above where a node with value of 13 would *initially* be inserted, i.e. before any rebalancing operations are performed.

b. Show the rebalanced AA tree after insertion of 13. List the sequence of intermediate steps performed along with which node the step operates on - even if they perform no modifications - but only redraw the tree when adjustments occur (you may use triangles to represent unaltered subtrees).