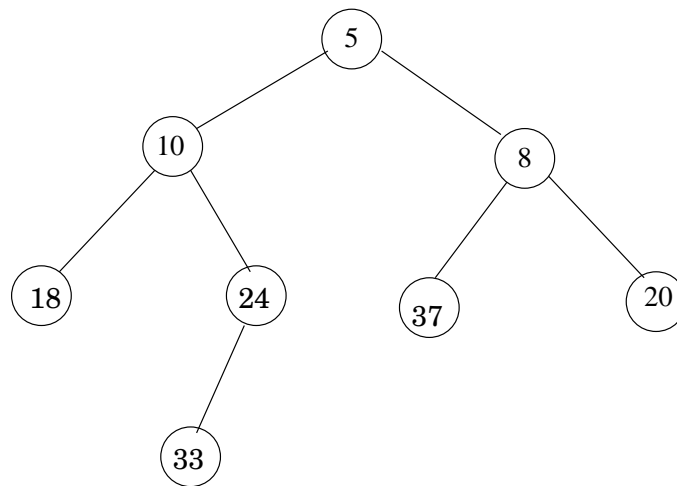


## Homework Assignment 3

Handed Out: Feb 10

Due: Feb 17

- (20 pts) Consider the leftist heap shown below.
  - Show the new heap that results when a deleteMin is performed. Show the intermediate steps.
  - To the heap that you got after the deleteMin, insert a new key '7'. Show the new heap after the insertion. Show the intermediate steps.



- (10 pts) In a binary tree, a *full node* is a node with two children. *Prove* that the number of leaves in the binary tree is always equal to the number of full nodes plus 1.
- (20 pts) Show the result of inserting 2, 1, 4, 5, 9, 3, 6, 7 into an initially empty AVL tree. Show all the steps, including the AVL height violations and what rotations are used to fix them.