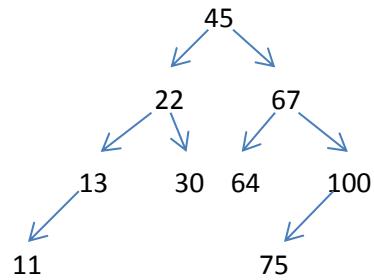


Worksheet 28

Group 11

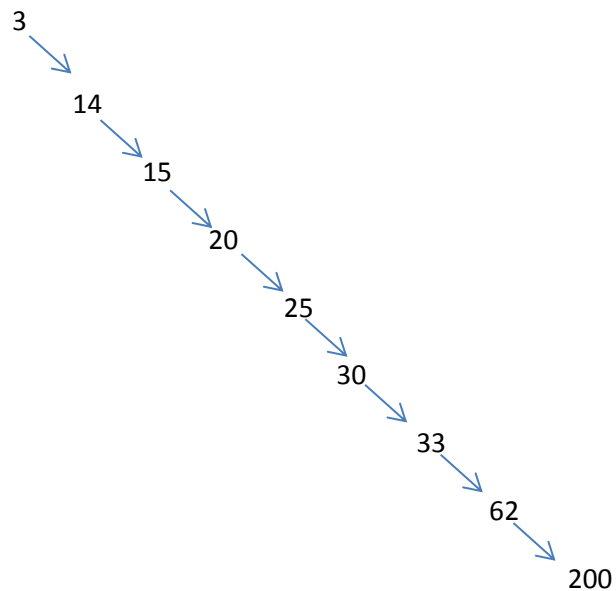
1. Add the following numbers, in the order given to a binary search tree. 45, 67, 22, 100, 75, 13, 11, 64, 30



2. What is the height of the tree from #1? What is the height of the subtree rooted at the node holding the value 22? What is the depth of the node holding the value 22?

Height = 3. Height of subtree at 22 = 2. Depth = 1

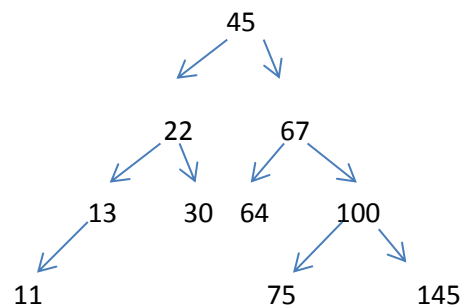
3. Add the following numbers, in the order given to a binary search tree. 3, 14, 15, 20, 25, 30, 33, 62, 200.



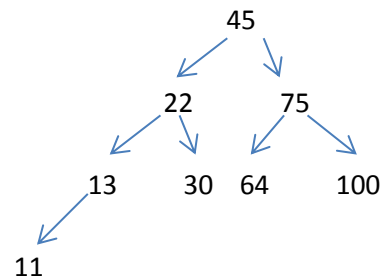
4. Is the tree from #3 balanced? Why not? What is the execution time required for searching for a value in this tree?

No it is not because all the values continue to go on the right side. It would be balanced if the number of values were about even on both the left and right sides. It would be  $O(n)$  because it would act more like a linked list than a binary tree.

5. Add a new value, 145, to the tree from #1



6. Remove the value 67 from the tree from #1. What value did you replace it with and why?



You replace 67 with 75 because you replace removed nodes with the leftmost child of the right subtree which is below.

