1 (5 points)

Give a linear time, $O(n)$, algorithm that converts a binary search tree into a heap; that is, your algorithm should produce a heap that has the same elements as a given binary search tree.

2 (5 points)

Suppose that we start with an empty binary search tree, and insert the following five numbers into the tree: 1, 3, 2, 5, 4. We add them one by one: first, we apply TREE-INSERT to add 1, then we apply it to add 3, then to add 2, and so on. Draw the resulting final tree, which should include all five numbers.