Exercise 1. (Cormen 12.1-4)
Give recursive algorithms that perform preorder and postorder tree walks in $\Theta(n)$ time on a tree of $n$ nodes.

Exercise 2. (Cormen 12.2-2)
Write recursive versions of the TREE-MINIMUM and TREE-MAXIMUM procedures.

Exercise 3. (Cormen 12.2-3)
Write the TREE-PREDECESSOR procedure.

Exercise 4. (Cormen 12.2-5)
Show that if a node in a binary search tree has two children, then its successor has no left child and its predecessor has no right child.

Exercise 5. (Cormen 12.2-7)
An inorder tree walk of an $n$-node binary search tree can be implemented by finding the minimum element in the tree with TREE-MINIMUM and the making $n - 1$ calls to TREE-SUCCESSOR. Prove that this algorithm runs in $\Theta(n)$ time.

Exercise 6. (Cormen 12.3-1)
Give a recursive version of the TREE-INSERT procedure.

Exercise 7. (Cormen 12.3-3)
We can sort a given set of $n$ numbers by first building a binary search tree containing these numbers (using TREE-INSERT repeatedly to insert the numbers one by one) and then printing the numbers by an inorder tree walk. What are the worst-case and best-case running times for this sorting algorithm?