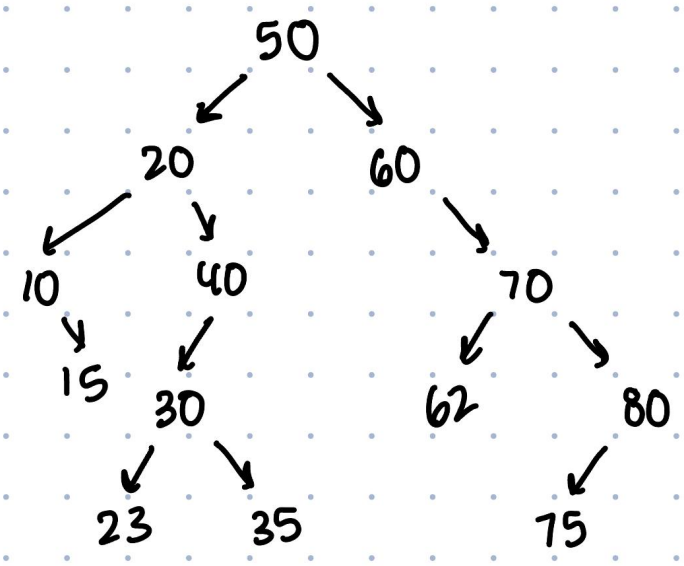
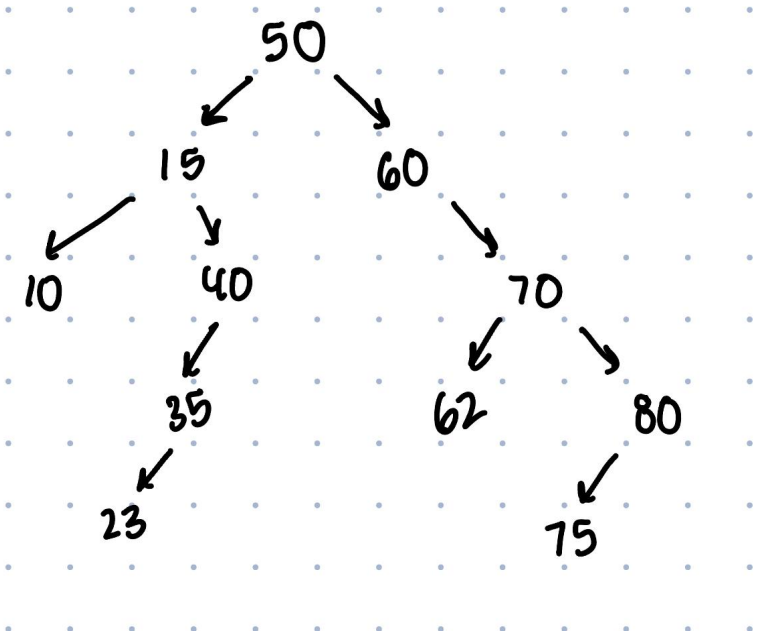
1a)



1b)

Inorder: 10 15 20 23 30 35 40 50 60 62 70 75 80
Preorder: 50 20 10 15 40 30 23 35 60 70 62 80 75
Postorder: 15 10 23 35 30 40 20 62 75 80 70 60 50

1c)



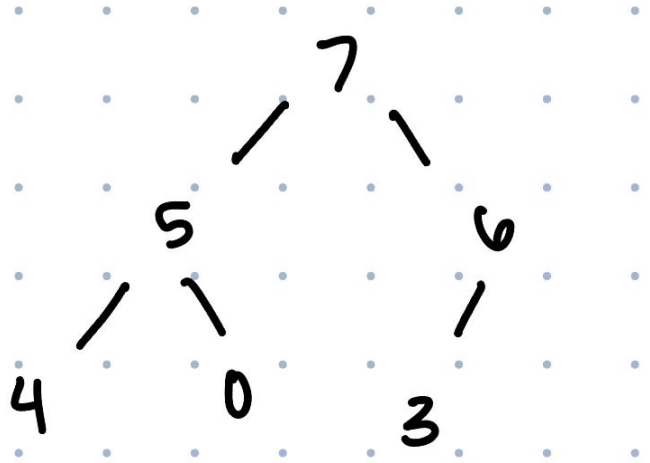
2a)

```
struct Node {
   int value;
   Node* parent;
   Node* left;
   Node* right;
};
```

2b)

```
void addNode (int val) {

        curr = pointer to root
        parent = nullptr

        while the current pointer is not the null pointer:
                if the current value equals val, return
                set parent to point to curr
                 if curr's value is greater than val, set curr to left
                else set curr to right

        create a Node where curr points to
        set left and right to nullptr, set parent to parent

}
```

3a)



3b) { 7, 5, 6, 4, 0 , 3 }
3c) { 6, 5, 3, 4, 0 }

(4)

a. O(C+S)
b. O(log(C) + S)
c. O(log(C)+log(S))
d. O(log(S))
e. O(1)
f. O(log(C)+S)
g. O(S*log(S))
h. O(C*log(S))