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Homework 5

1a) 50

20 60

10 40 70

15 30 65 80

25 35 75

1b)

Inorder: 10, 15, 20, 25, 30, 35, 40, 50, 60, 65, 70, 75, 80

Preorder: 50, 20, 10, 15, 40, 30, 25, 35, 60, 70, 65, 80, 75

Postorder: 15, 10, 25, 35, 30, 40, 20, 65, 75, 80, 70, 60, 50

1c)

50

10 60

15 40 70

25 65 80

35 75

2a)

struct Node{

int data;

Node\* leftChild, rightChild, parent;

};

2b)

Void insertNode(const in val)

{

Node ptr equals m\_root

Node current equals to nullptr

While ptr is not equal to nullptr

If ptr’s data is equal to val

Return

Assign ptr to curr

If current’s data is greater than val

Ptr equals current’s left

If current’s data is less than val

Ptr equals current’s right

Ptr equals new node(val)

Ptr’s parent equals current

}

3a)

8

3 6

0 2 4

3b) { 8, 3, 6, 0, 2, 4}

3c) {6, 3, 4, 0, 2}

4a)

1. O(C + S)
2. O(log(C) + S)
3. O(log(c) + log(s))
4. O(log(S))
5. O(1)
6. O(log(C) + S)
7. O(S)
8. O(Clog(S))