Mudith Mallajosyula – ID# 404937201 – Homework 5

1a.

40

50

10

30

20

80

25

74

36

15

60

65

70

1b. Inorder: 10 15 20 25 30 36 40 50 60 65 70 74 80

Preorder: 50 20 10 15 40 30 25 36 60 70 65 80 74

Postorder: 15 10 25 36 30 40 20 65 74 80 70 60 50

1c.

40

50

10

80

25

74

36

15

60

65

70

2a.

struct Node{

Node\* parent;

int data;

Node\* leftChild;

Node\* rightChild;

};

2b.

start at root

Repeatedly

if inserting node’s data is less than current node’s data

if left child of current node is null

set inserting node’s parent to current node

set current node’s left child to inserting node

else

follow left subtree

if inserting node’s data is greater or equal to than current node’s data

if right child of current node is null

set inserting node’s parent to current node

set current node’s right child to inserting node

else

follow right subtree

3a.

6

3

0

8

4

2

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

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

4a. O(CS)

4b. O(logC + S)

4c. O(logC + logS)

4d. O(logS)

4e. O(1)

4f. O(lSogC)

4g. O((S^2)logS) <=== O (S \* SlogS)

4h. O(ClogS)