1. A) 50

20 60

10 40 70

30 45 65 80

25 35 75

B) 50

20 60

10 40 70

35 45 65 80

25 75

C) In-order: 10 20 25 30 35 40 45 50 60 65 70 75 80

Pre-order: 50 20 10 40 30 25 35 45 60 70 65 80 75

Post-order: 10 25 35 30 45 40 20 65 75 80 70 60 50

1. A) 6

3 5

1 2 4

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 6 | 3 | 5 | 1 | 2 | 4 |

B)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5 | 3 | 4 | 1 | 2 |

C)

3.

A)

struct Node{

int data;

Node\* left;

Node\* right;

Node\* parent;

}

B)

void insert(node\* root, Node\* newNode){

if the root is a nullptr, set root to newNode and set newNode’s parent to nullptr

else if newNode’s date is less than root’s data

if root has no left child

set root’s left child to point to new Node

else

call insert recursively with root’s left child as the root parameter

else if newNode’s data is greater than root’s data

if root has no right child

set root’s right child to point to newNode

else

call insert recursively with root’s right child as the root parameter

}