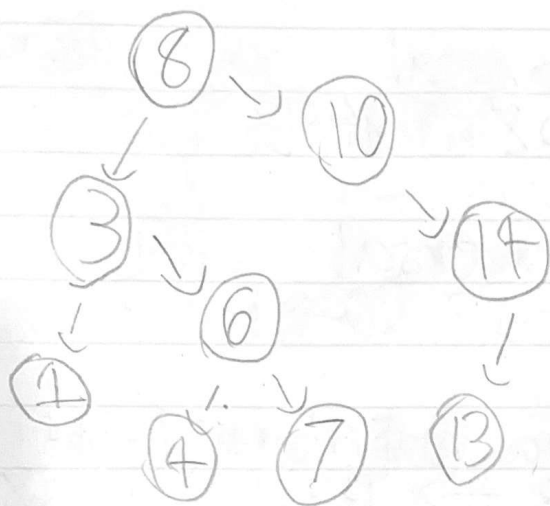


comp 232 hw 4



a) root is 8

b) Leaves have values of 1, 4, 7, 13

c) Internal nodes of the tree are 8, 3, 6, 10, 14

d) descendants of 3 are 1, 6, 4, 7

e) ancestors of 7 are 6, 3, 8

f) depth of node 6 is 2

g) height of tree is 3

h) path length from 8 to 4 is 3



node values in order they would be visited by

i) An inorder traversal Left \rightarrow Root \rightarrow Right

4 \rightarrow 6 \rightarrow 7 \rightarrow 1 \rightarrow 3 \rightarrow 8 \rightarrow 10 \rightarrow 14 \rightarrow 13

ii) A preorder traversal Root Left Right

8 \rightarrow 3 \rightarrow 1 \rightarrow 6 \rightarrow 4 \rightarrow 7 \rightarrow 10 \rightarrow 14 \rightarrow 13

iii) A postorder traversal Left \rightarrow Right \rightarrow Root

4 \rightarrow 7 \rightarrow 1 \rightarrow 6 \rightarrow 3 \rightarrow 13 \rightarrow 14 \rightarrow 10 \rightarrow 8

iv) A levelorder traversal

8 \rightarrow 3 \rightarrow 10 \rightarrow 4 \rightarrow 6 \rightarrow 14 \rightarrow 7 \rightarrow 2 \rightarrow 13

Root \rightarrow Level
Left
Level
Right

2a) nodes leftmost grand child is
node.left.left

2b) node.parent.parent.parent

2c) node.parent.right.left