Problem 1-(1)

The last node of a post-order list is the root node of the tree. The last but one is a child node of the root, should be the right child or the left child if the right child is missing in an incomplete binary tree. Therefore we know

(a)

(b)

(c)

(d)

From the in-order list, the left sub-tree of the root node consists of nodes 4, 26, and 19. Therefore, (a) is the case not (b). The first three nodes in in-order list is 4, 26, then 19. So (c) is the case, not (d). We have (e) resulted. In the right-sub tree whose root is 11; from the in-order list, we know nodes 7,15, and 34 are left children of node 11, while 13 and 8 are right children. Nods 8 and 13 is exactly case (f’) not (f). From the post-order list, case is (h) not (g). Therefore the complete tree is show in case (i)

(e)

(f)

(g)

(h)

(f’)

(i)

Problem 1-(2)

{ai} ={1,2,3,4,5,6,8},

{bi}={1+(2+3+..+8), 2+ (3+4+…+8), … }

={29, 28, 26, 23, 19, 14, 8}

Problem 1-(3)

1. Calculate sum of all node values = S.
2. D🡨0
3. In-order traverse the tree; for each node x:

D🡨 x.val

x.val 🡨S

S🡨S-D

Problem 1-(4)

For pre-order, in-order, and post-order traversing the values of nodes are monotonically increasing or decreasing. The value of node x

Problem 1-(5)

Totally, there are 10 nodes, the depth complete tree will be three, since 10< 1+2+4+8.

Problem 1-(6)

Problem 2-