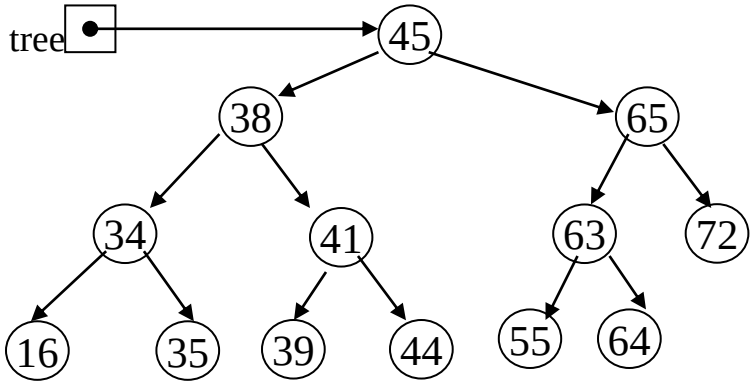
1. Given the following binary tree:



(a) What is the inorder traversal of the tree?

Since the inorder traversal → (left,root,right)
16 34 35 38 39 41 44 45 55 63 64 65 72

(b) What is the preorder traversal of the tree?

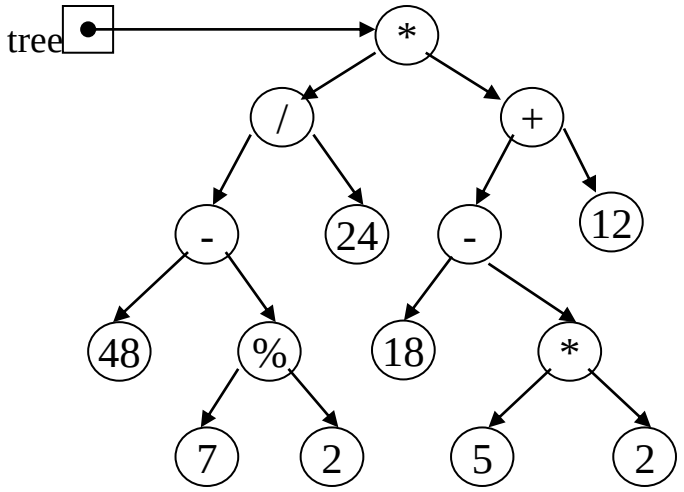
preorder traversal → (Root,left,right)
45 38 34 16 35 41 39 44 65 63 55 64 72

(c) What is the postorder traversal of the tree?

Postorder traversal → (left,right,root)
16 35 24 39 44 41 38 55 64 63 72 65 45

(d) What is the height of the tree? What nodes are on level 2?
Height of the tree is 4 and the nodes at level 2 are: 38 and 65

2. Given the following binary expression tree:



(a) What is the inorder traversal of the tree?

48 – 7 % 2 / 24 * 18 – 5 * 2 + 12

(b) What is the postorder traversal of the tree?

48 7 2 % - 24 / 18 5 2 * - 12 + *

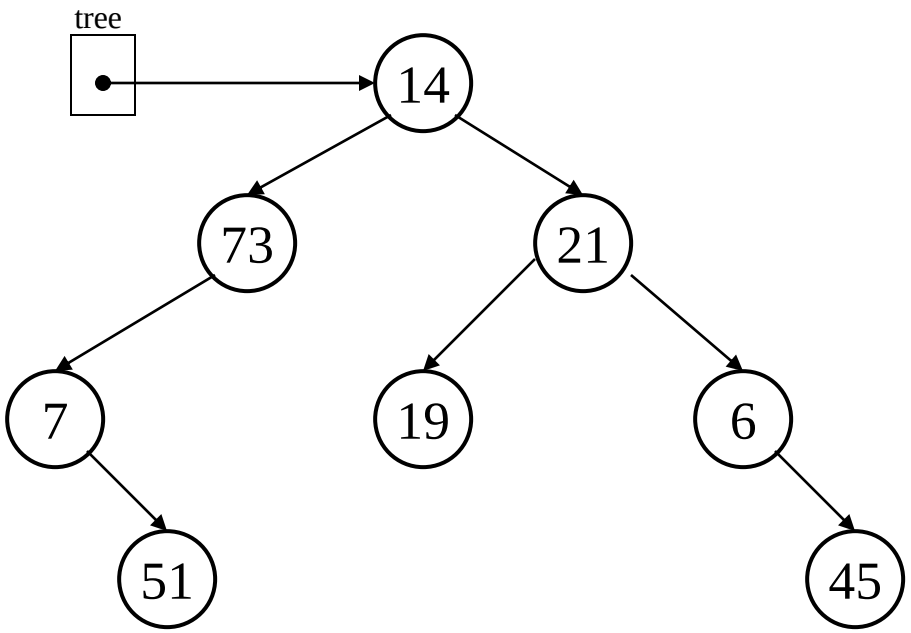
(c) What does it evaluate to if using integer division?
((48-(7%2))/24)*(12+(18-(5*2))) =20
(d) What does it evaluate to if using float division?
((48-(7%2))/24)*(12+(18-(5*2))) = 39.166666667

3. The elements in a binary tree area to be stored in an array. Each element is a nonnegative int value.

a. What value can you use as a dummy value, if the binary tree is not complete? null

b. Show the contents of the array, given the tree illustrated below

[0]	14
[1]	73
[2]	21
[3]	7
[4]	null
[5]	19
[6]	6
[7]	null
[8]	51
[9]	null
[10]	null
[11]	null
[12]	null
[13]	
[14]	45



4. Given the array pictured below, draw the binary tree that can be created from its elements.

[0]	35
[1]	20
[2]	71
[3]	40
[4]	52
[5]	63
[6]	null
[7]	17
[8]	25
[9]	null
[10]	7
[11]	null
[12]	45