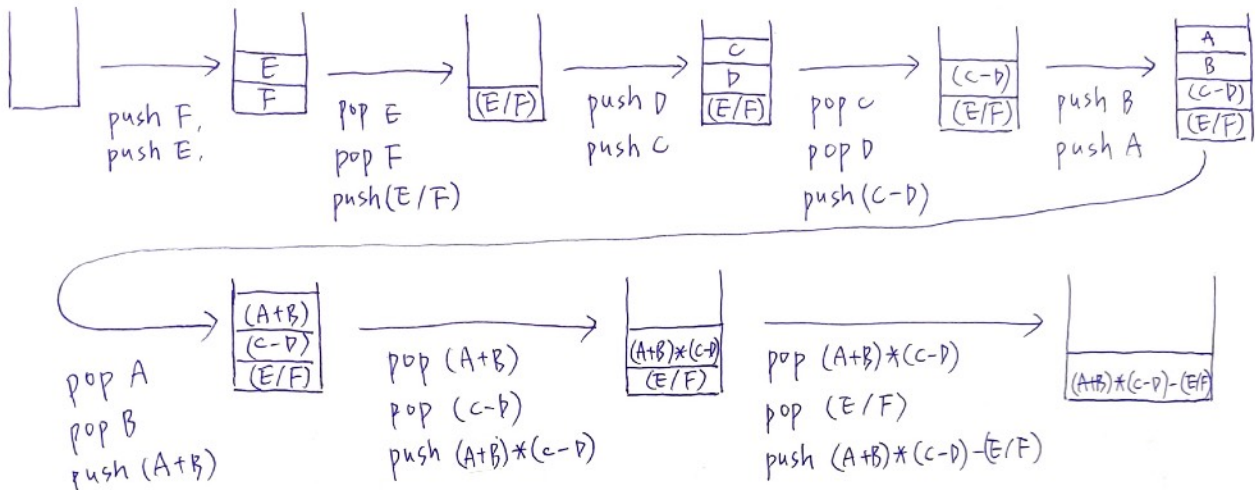


Data Structures

Fall 2020, Homework #2 Solution

1.

(a)



(b)

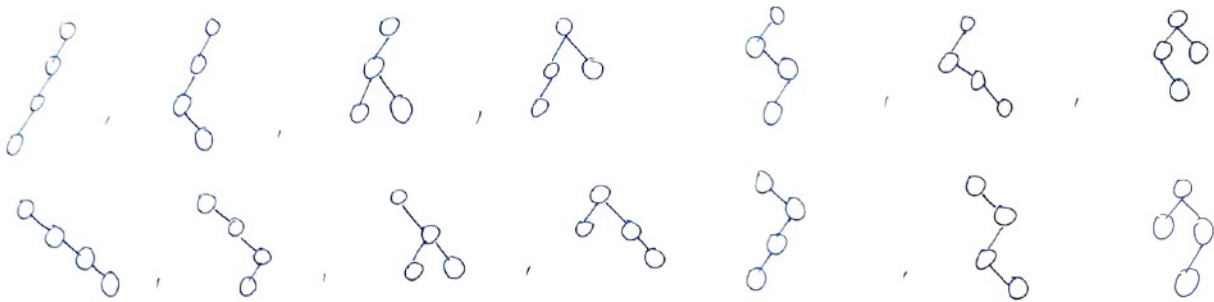
- step 1. reverse infix input, 将 "(" 换成 ")"、")" 换成 "("
- step 2. 把 step 1 的结果 转成 postfix
- step 3. reverse step 2 的结果

(c)

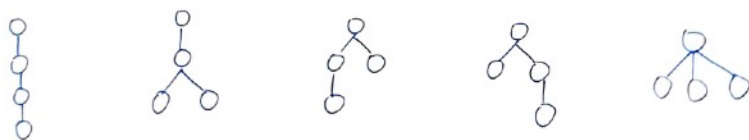
- step 1. $A + (B * C - (D / E - F) * G) * H$
 $\rightarrow H * (G * (F - E / D) - C * B) + A$ (reverse)
- step 2. $H * (G * (F - E / D) - C * B) + A$
 $\rightarrow H G F E D / - * C B * - * A +$ (to postfix)
- step 3. $H G F E D / - * C B * - * A +$
 $\rightarrow + A * - * B C * - / D E F G H$ (reverse)

2.

(a)



(b)



3.

(a.) Yes.

root is the first element in preorder traversal

divide inorder traversal into left subtree, root, right subtree

preorder traversal into root, left subtree, right subtree.

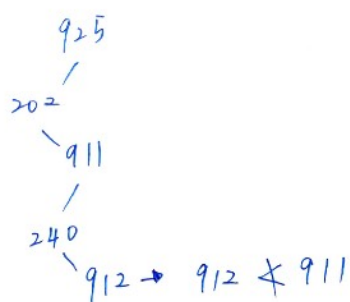
recursively do above until subtree is null.

(b.)



4.

(c.)



(e.)

