

Q1) Draw an expression tree corresponding to each of the following

a) Inorder traversal: $x/y + 3 * b/c$

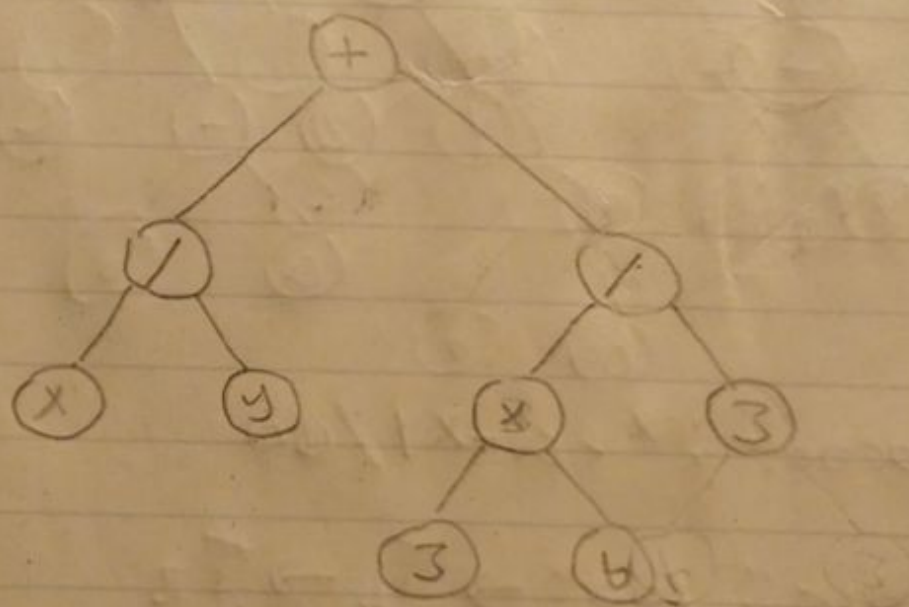
b) Postorder traversal: $xy2 + ab/c * / -$

c) Preorder traversal: $* + ab/c / cd$

a) Inorder: $x/y + 3 * b/c$

Inorder: $T_L \rightarrow \text{root} \rightarrow T_R$

$$x/y + 3 * b/c \rightarrow (x/y) + (3 * b/c)$$

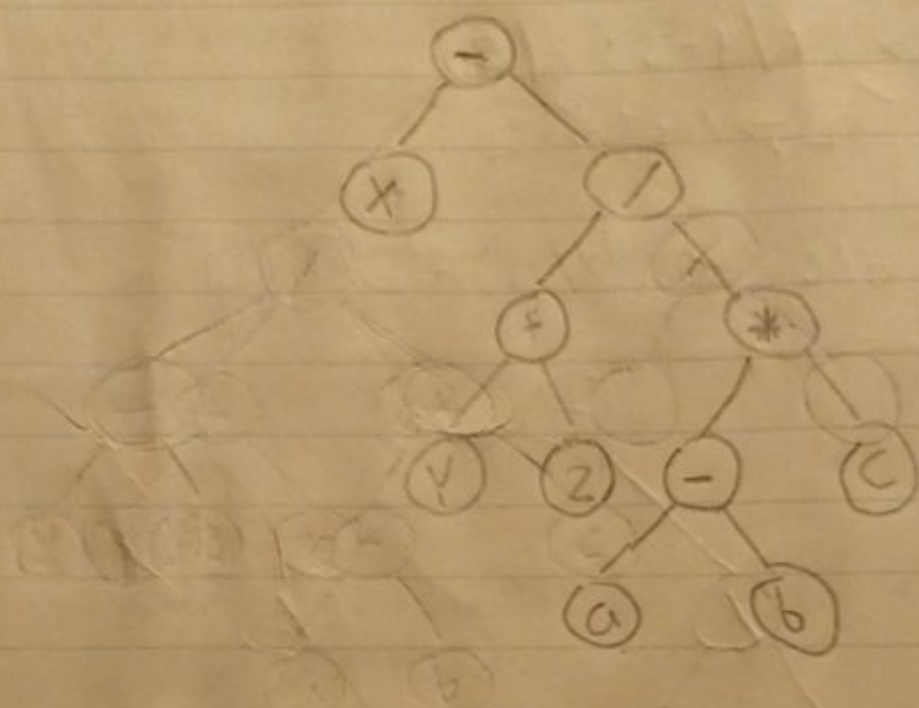


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b) Postorder traversal: $xyz + ab - c * / -$

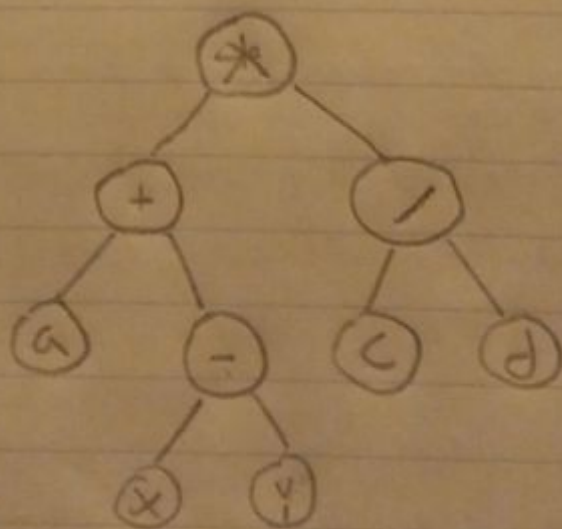
Postorder: $T_L \rightarrow T_R \rightarrow \text{Root}$

$$xyz + ab - c * / - = x - ((y - z) / ((a - b) * c))$$



c) Preorder: $* + a - xy / cd$

Preorder: $\text{root} \rightarrow T_L \rightarrow T_R$

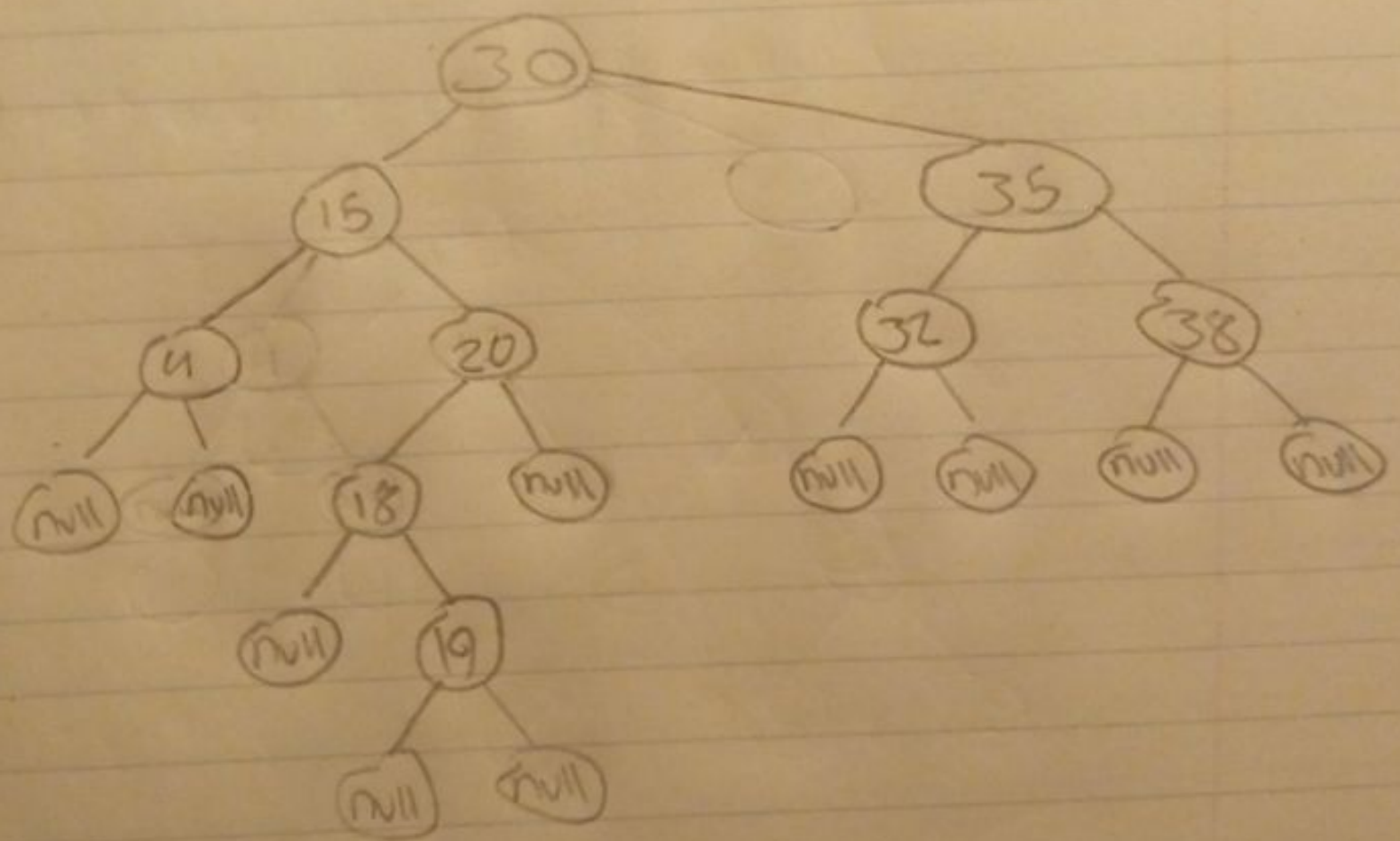


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Q2) Consider the output of a to-string method below and show the tree that would be built by the following Java line is the binary search tree

30, 15, 4, null, null, 20, 18, null, 19, null, null, null, 35, 32, null, null, 38, null, null

Preorder Root $\rightarrow T_L \rightarrow T_R$



Preorder: 30, 15, 4, null, null, 20, 18, null, 19, null, null, null, 35, 32, null, null, 38, null, null