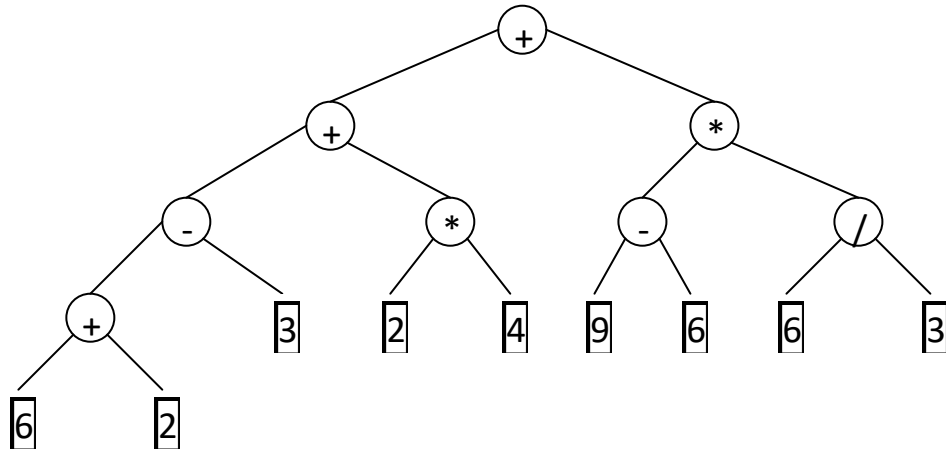


CS526 O2
Homework Assignment 3

Problem 1 (10 points). Consider the following binary tree that stores an arithmetic expression.

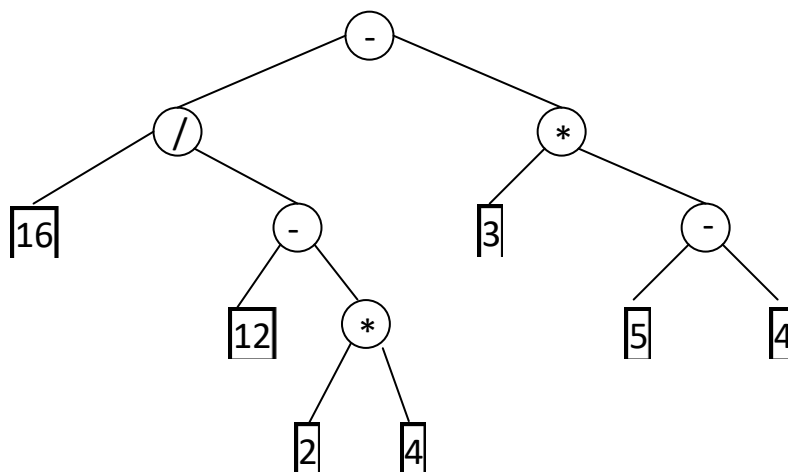


Write the arithmetic expression of the tree and show the value of the expression. When you write the expression, make sure that you use parentheses in your expression correctly.

Answer: Expression: $((((6 + 2) - 3) + (2 * 4)) + ((9 - 6) * (6 / 3)))$ Value: 19

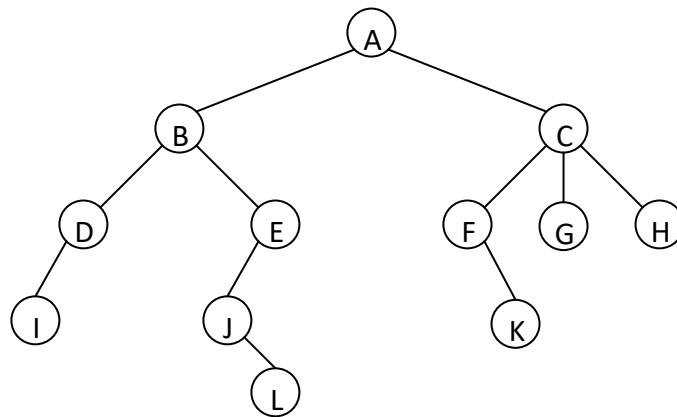
Problem 2 (10 points). Draw the arithmetic expression tree that stores the following expression:

$$((16 / (12 - (2 * 4))) - (3 * (5 - 4)))$$



Answer:

For Problem 3, Problem 4, and Problem 5, use the following tree, which stores characters:



Problem 3 (10 points). Show the sequence of nodes (characters) generated by preorder tree traversal.

Answer: A => B => D => I => E => J => L => C => F => K => G => H

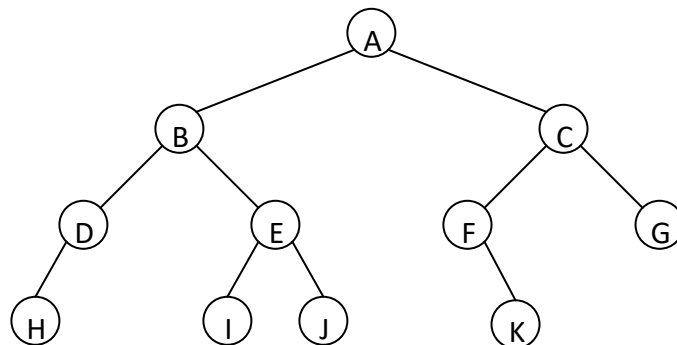
Problem 4 (10 points). Show the sequence of nodes (characters) generated by postorder tree traversal.

Answer: I => D => L => J => E => B => K => F => G => H => C => A

Problem 5 (10 points). Show the sequence of nodes (characters) generated by breadth-first tree traversal.

Answer: A => B => C => D => E => F => G => H => I => J => K => L

Problem 6 (10 points). Consider the following binary tree:



Show the sequence of nodes (characters) generated by inorder tree traversal.

Answer: H => D => B => I => E => J => A => F => K => C => G