**CS220 - Lesson 19 – Tree Worksheet**

Tree *traversal* – process each node in a tree exactly once in a particular order.

* Given *n* nodes, there are *n*! (i.e., *n* factorial) possible orderings.
* For binary trees, we typically only care about 3 of the possible orders:

|  |  |  |
| --- | --- | --- |
| Pre-order traversal | In-order traversal | Post-order traversal |
| void preOrder(node) {  process(node)  preOrder(node->leftChild)  preorder(node->rightChild)  } | void inOrder(node) {  inOrder(node->leftChild)  process(node)  inOrder(node->rightChild)  } | void postOrder(node) {  postOrder(node->leftChild)  postOrder(node->rightChild)  process(node)  } |

Given this binary tree, what order will each of the traversals process the nodes?

Pre-order:

In-order:

Post-order:

Figure out how you can "check your work" for the traversals.