CS 225 — Traversal Activity

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Code

Here is some tree code. You can assume other fun things are in here as well.

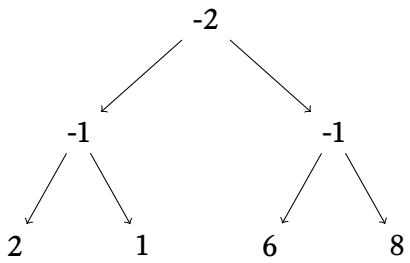
```
template <T>
class BinaryTree {
    private:
    class Node {
        T data;
        Node *left, *right;
    };
    Node *root;
    // Other stuff too....
};
```

Questions

1. Write a function `int BinaryTree::calc(BinaryTree<int> *t);` that takes a binary tree of integers `t` and interprets it according to the following rules:

   - If a node's `data` is zero or positive, then the return value is just `data`.
   - If a node's `data` is `NULL`, the return value is 0.
   - If a node's `data` is -1, then add the value of the left subtree to the value of the right subtree.
   - If a node's `data` is -2, then multiply the value of the left subtree to the value of the right subtree.

   So the tree:

   has value 42. In a few minutes, show your code to someone next to you and compare your solutions.

2. If you have a preorder traversal, you can reassemble the tree *if you know how many children each node should have*. If you assume that mathematical operators have two children, and integers have no children, then convert the following preorder notation to a postorder notation.

   `"+ * 2 3 * 9 9"`