CSSE230 Exam 2 Practice (from Winter 2016-17) Name:_____

In the BST class:

```
public int countOneChildParents() {
    return root.countOneChildParents();
}


public void pruneLeaves() {
    root = root.pruneLeaves();
}

public Integer branchPoint(Integer x, Integer y) {
    if (x > y) { // swap so that we'll always have x <= y.
        int temp = x;
        x = y;
        y = temp;
    }
    return root.branchPoint(x,y);
}
```

In the BinaryNode class:

```
public int countOneChildParents() {
    if (this == NULL_NODE) {
        return 0;
    }
    int children = 0;
    if (this.left != NULL_NODE) {
        children++;
    }
    if (this.right != NULL_NODE) {
        children++;
    }
    int forThis = (children == 1 ? 1 : 0);
    return (forThis + left.countOneChildParents() + right.countOneChildParents());
}
public BinaryNode pruneLeaves() {
    if (this == NULL_NODE) {
        return NULL_NODE;
    }
    if (this.left == NULL_NODE && this.right == NULL_NODE) {
        return NULL_NODE;
    }
    left = left.pruneLeaves();
    right = right.pruneLeaves();
    return this;
}
public Integer branchPoint(int x, int y) {
    // Assume x <= y
    if (this == NULL_NODE) {
        return null;
    }
    if (x <= this.data) {
        if (this.data <= y) {
            return this.data;
        }
        else { // data is larger than both x and y
            return left.branchPoint(x, y);
        }
    }
    else { // data is smaller than both x and y
        return right.branchPoint(x, y);
    }
}
```