Questions

1. One paramenter `root` of type `TreeNode<T>` which is used to access its children nodes.

   It returns the height of the tree rooted at `root`.

2. One paramenter `root` of type `TreeNode<T>` which is used to access its children nodes again.

   It returns the height difference between the left and right subtrees of the tree at `root`.

3. The `root` node is an unbalanced subtree that needs to balance for the 4 cases: left-left, left-right, right-right, and right-left. Then it returns the root node of the balanced subtree.

4. The `root` node needs to be rotated to the right which makes its left child the new root which is returned.

5. The max height of a tree's root node is `height = max(leftHeight, rightHeight) + 1`

6. A new allocated leaf node has a height of 0, and an empty tree has a height of -1.

7. The helper functions makes it so we can pass the original root node as a parameter for the recursive function.

8. Because the old root node is now the right child of the new root node so the pointer has to update to point the other way around now.