Ch. 2 ♦ Exercises

3a. n levels

max nodes = $2^n - 1$ nodes

15 nodes would be:

$2^n - 1 = 15$

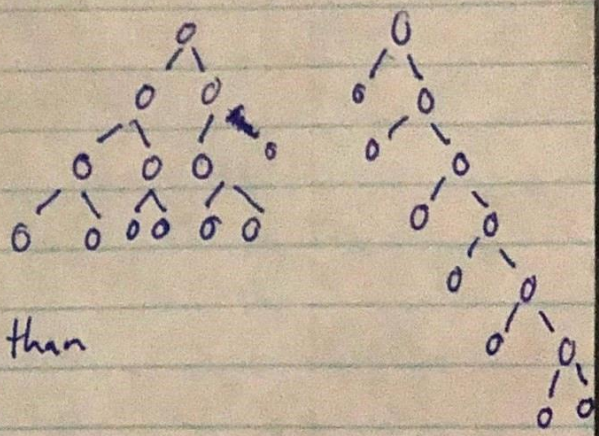
$2^n = 16$

$n = 4$ = 4 levels would be bushiest

max leaves = $2 \cdot n$

3b. smallest # of nodes = 1

greatest = 7 leaf nodes



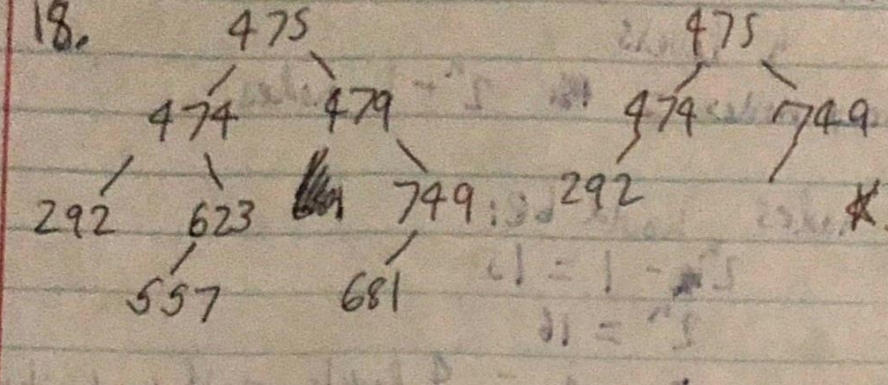
levels has to be less than # of nodes +1

4. No Induction on test

5. ↗

7.
```
public int sumTree(TreeNode root){
  int sum = 0;
  if (root.getRight && root.getLeft == null){
    sum += root;
  else{
    sumTree(root.getLeft());
    sumTree(root.getRight());
  } return sum;
```

18.


475
474
479
292
623
749
557
681
475
474
749
292
start at top and work way down