CSE 332: Data Abstractions

QuickCheck: Parallelism Solutions (due Thursday, February 11)

0. Work it Out [the Span]

Consider the following code which returns the average value in a perfect binary tree:

```java
int findAverage (Node n) {
    if(n != null){
        if (n.left == null && n.right == null) {
            return n.value;
        } else {
            return (n.value + (findAverage(n.left) + findAverage(n.right)) * (2 ^ (h - 1) - 1)) / 2 ^ h - 1;
        }
    }
}
```

Find the work and span of the function.

**Solution:**
See lecture slides - work is $O(n)$, span is $O(lg(n))$. 