

Use the code below to answer the following questions.

```
myFunc(n) :
    if n=0 or n=1 return 1
    return myFunc(n-1) + 2 * myFunc(n-1) + myFunc(n-2)
```

1) Assuming all arithmetic can be done in hardware, find an asymptotic upper bound on the runtime of this algorithm.

$O(3^n)$

This is because each instance of the function calls at most 3 more instances.

2) Exactly how many function calls does this make for an input of $n = 4$?

Working out the recursion, it looks like we call a the function a total of 25 times:

