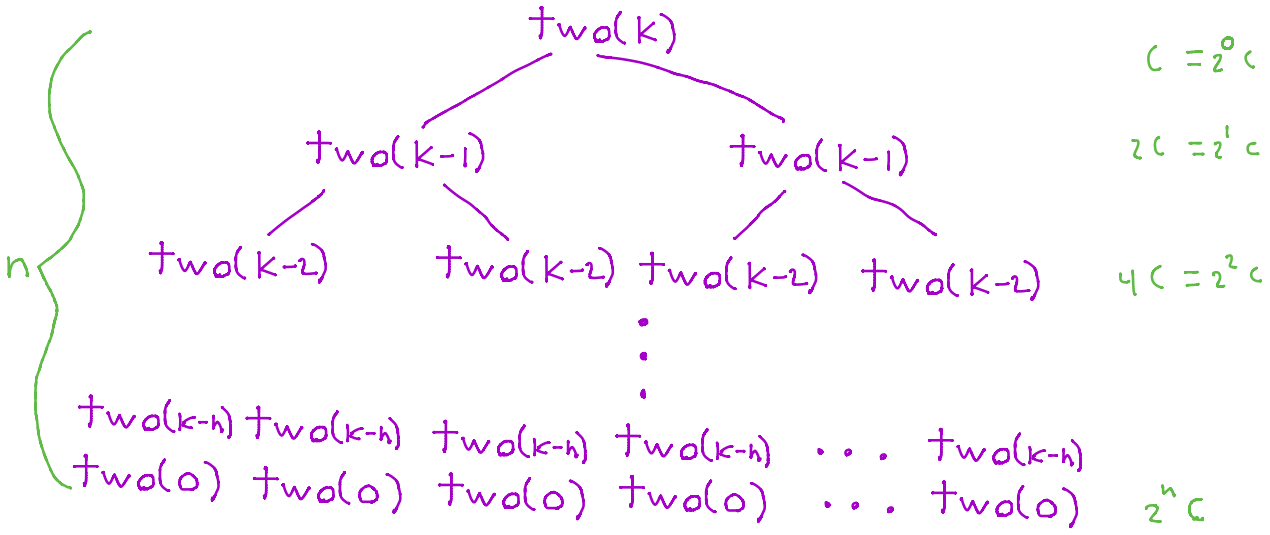
Michael Peterson

CSCD320 - Algorithms
Fall 2016
Homework 1

1)

```
public static void two(int n)
{
    if(n > 0)
    {
        System.out.println("n: " +n);
        two(n - 1);
        two(n - 1);
    }
    else if (n < 0)
    {
        two(n + 1);
        two(n + 1);
        System.out.println("n: " + n);
    }
}
```



$O(2^h)$

2)

```
public void three(int n)
{
    int i, j, k;
    for (i = n/2; i > 0; i = i/2)
        for (j = 0; j < n; j++)
            for (k = 0; k < n; k++)
                System.out.println("i: " + i + " j: " + j+" k: " + k);
} // end three
```

$O(\log_2 n)$ $O(n)$ $O(n)$

$O(n^2 \log_2 n)$

3)

```
public static void four(int n)
{
    if (n > 1)
    {
       System.out.println(n);
        four(n-1);
    }
    for (int i = 0; i < n; i++)
        System.out.println(i);
}
```

$O(n)$ $O(n)$

T( )

four(n) 1+1+n

four(n-1) 1+1+(n-1)

four(n-2) 1+1+(n-2)

four(0) 1+1

n

$O(n^2)$