1. Give the $\Theta()$ running time for each of the following functions, in terms of the input parameter $n$:

(a) `int f(int n) {`
    `int i;`
    `sum = 0;`
    `for (i=0; i<n; i=i+2)`
    `sum++;`
    `return sum;}`

(b) `int g(int n) {`
    `int i;`
    `sum = 0;`
    `for (i=0; i<n; i=i+1)`
    `sum += f(n); // function f from part a`
    `return sum;}`

(c) `int h(int n) {`
    `for (i=1; i<n; i=i*2)`
    `sum += f(n); // function f from part a`
    `return sum;}`

2. For each of the following recursive functions, describe what the function computes, give the recurrence relation that describes the running time for the function, and then solve the recurrence relation.

(a) `int recursive1(int n) {`
    `if (n <= 1)`
    `return 1;`
    `else`
    `return recursive1(n-2) + recursive1(n-2);`}

(b) `int recursive2(int n) {`
    `if (n <= 1)`
    `return 1;`
    `else`
    `return 2 * recursive2(n-2);`}

3. Look over all the visualizations for algorithms used in the class, be sure you know how all of them work. (Nothing to turn in for this, but you really should do it, to help for the final)