CSC 212 Tutorial #3
Program Analysis

Problem 1

Analyze the following code excerpts:

	Code	S/E	Frequency	Total

1
2
3
4
	`int product = 1;`
	`for (int i = 0; i < 10; i = i + 2)`
	`    product = product * i;`
	`System.out.println(product);`			

	Total			
	O			

	Code	S/E	Frequency	Total

1
2
3
4
5
	`int product = 1;`
	`for (int i = 0; i < n; i = i + 2)`
	`    for (int j = 0; j < 6; j ++)`
	`        product = product * i * j;`
	`System.out.println(product);`			

	Total			
	O			

	Code	S/E	Frequency	Total

1
2
3
4
5
	`int sum = 0;`
	`for (int i = 1; i <= n; i++)`
	`  for (int j = 1; j <= i; j++)`
	`  sum = sum + 1;`
	`System.out.println(sum);`			

	Total			
	O			

Is there any other way to write the above code in better performance?

	Code	S/E	Frequency	Total

1
2
3
4
5
	`int sum = 0;`
	`for (int i = 0; i < n; i++)`
	`  for (int j = n; j >= 1; j = j/2)`
	`  sum += 1;`
	`return sum;`			

	Total			
	O			

Problem 2

Find the simplest $g(n)$, c, n_o for the following $f(n)$: $5n^3logn + 20n^2 - 4n + 3$

Problem 3

Find the big O notation for the following function: $2^{logn^4+2} + n^3logn$