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345 Assignment 2

1.

- a. $O(n^2)$
- b. $O(n^3)$
- c. $O(n^2)$
- d. $O(n^3 \log n)$
- e. $O(2^n)$

function foo(n)

{

int i=0; //+1

while(i<n) //do this n times i<n +1

{

System.out.println(i); +3

i++; //+1

}

}

//n+6 so $O(n)$

3. function bar(n)

{

//these loops being within each other mean that they multiply each other

for(int j=0; j<n; j+=2) //n +3

{

for(int i=1; i<n; i*=2)//due to multiplication lg(n)

{

System.out.println(i*j); //+4

}

}

for(int i=0; i<100; i++)// add n to the first part

{

System.out.println(i); //+1

}

}

$n*(\lg(n)+4+$

n

$n*\lg(n)+4n$

$+n$

$n*\lg(n)+5n$

$O(n*\log(n))$