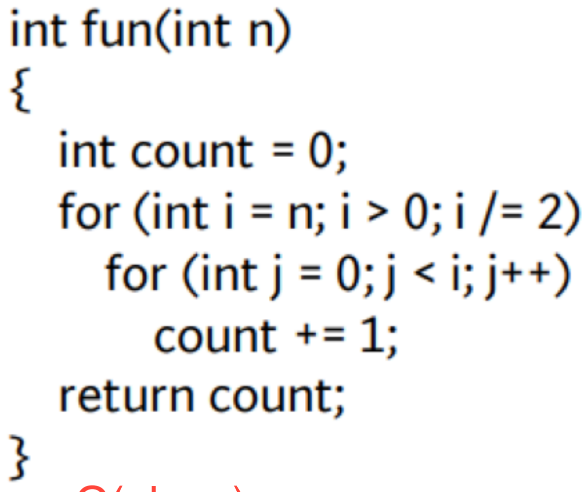
# HW 3- Calculate the time complexity.

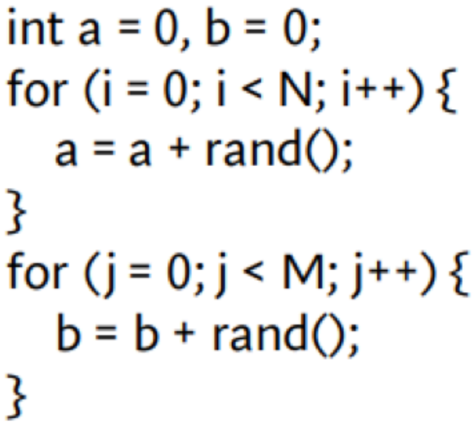
1



```
int fun(int n)
{
    int count = 0;
    for (int i = n; i > 0; i /= 2)
        for (int j = 0; j < i; j++)
            count += 1;
    return count;
}
```

O(nlogn)

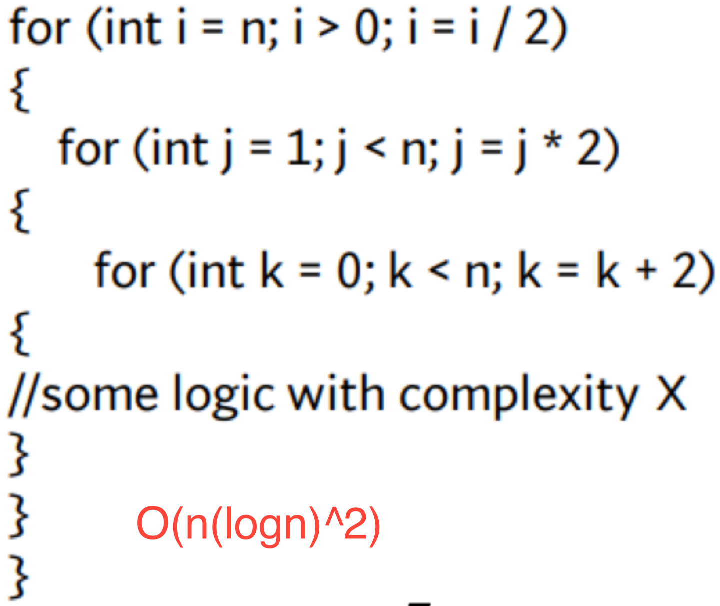
2



```
int a = 0, b = 0;
for (i = 0; i < N; i++) {
    a = a + rand();
}
for (j = 0; j < M; j++) {
    b = b + rand();
}
```

O(N+M)

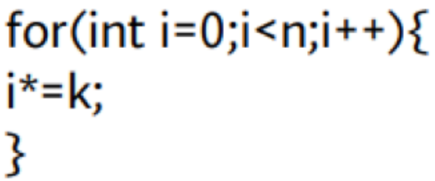
3



```
for (int i = n; i > 0; i = i / 2)
{
    for (int j = 1; j < n; j = j * 2)
{
      for (int k = 0; k < n; k = k + 2)
{
//some logic with complexity X
}
}
}
```

O(n(logn)^2)

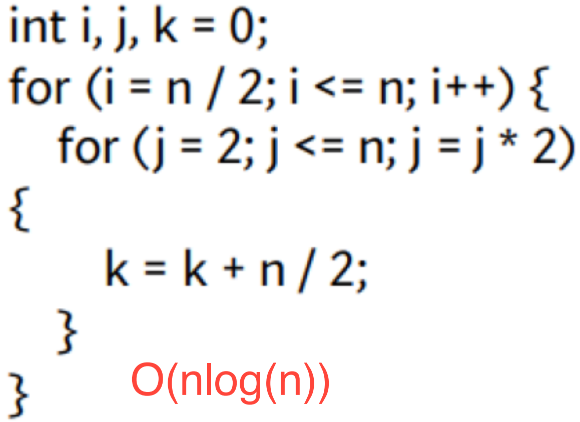
4



```
for(int i=0;i<n;i++){
i*=k;
}
```

O(logn)

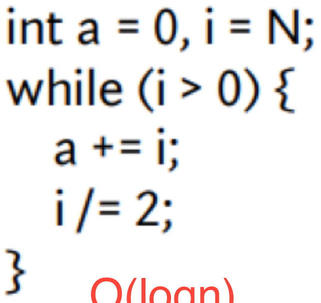
5



```
int i, j, k = 0;
for (i = n / 2; i <= n; i++) {
    for (j = 2; j <= n; j = j * 2)
{
        k = k + n / 2;
    }
}
```

O(nlog(n))

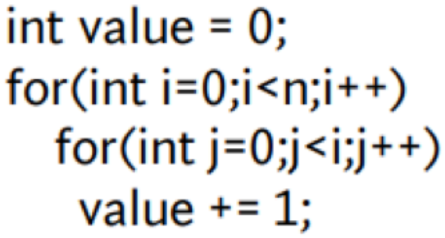
6



```
int a = 0, i = N;
while (i > 0) {
    a += i;
    i /= 2;
}
```

O(logn)

7



```
int value = 0;
for(int i=0;i<n;i++)
    for(int j=0;j<i;j++)
     value += 1;
```

O(n^2)