

Convert the following algorithm into a program and find its time complexity using counter method.

```
void function(int n)
{
    int c = 0;
    for(int i=n/2; i<n; i++)
        for(int j=1; j<n; j = 2 * j)
            for(int k=1; k<n; k = k * 2)
                c++;
}
```

Note: No need of counter increment for declarations and scanf() and count variable printf() statements.

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:

```
1 #include<stdio.h>
2 void function(int n){
3     int c = 0;
4     c++;
5     for(int i=0;i<n;i++){
6         c++;
7
8         for(int j=1;j<n;j= 2*j){
9             c++;
10            for(int k=1;k<n;k=k*2){
11                c++;
12
13            }
14        }
15    }
16    printf("%d\n",c+1);
17 }
18
19
20
21 int main(){
22     int n;
23     scanf("%d",&n);
24     function(n);
25 }
26
```

| | Input | Expected | Got | |
|---|-------|----------|-----|---|
| ✓ | 4 | 30 | 30 | ✓ |
| ✓ | 10 | 212 | 212 | ✓ |

Passed all tests! ✓

Comment