Finding Complexity using Counter Method

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1

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

```
void function (int n)
{
    int i= 1;

    int s =1;

    while(s <= n)
    {
         i++;
         s += i;
     }
}
```

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

For example:

Input	Result
9	12

Answer: (penalty regime: 0 %)

```c
#include<stdio.h>
void function(int n){
    int count=0;
    int i=1;
    count++;
    int s=1;
    count++;
    while(s<=n){
        count++;
        i++;
        count++;
        s+=i;
        count++;
    }
    count++;
    printf("%d ",count);
}
int main(){
    int n;
    scanf("%d ",&n);
    function(n);
    return 0;
}
```

	Input	Expected	Got	
✔	9	12	12	✔
✔	4	9	9	✔

Passed all tests! ✔

2

Started on	Sunday, 17 August 2025, 7:57 PM
State	Finished
Completed on	Sunday, 17 August 2025, 8:11 PM
Time taken	14 mins 6 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

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

```
void func(int n)
{
    if(n==1)
    {
      printf("*");
    }
    else
    {
     for(int i=1; i<=n; i++)
     {
       for(int j=1; j<=n; j++)
       {
          printf("*");
          printf("*");
          break;
       }
     }
   }
 }
```

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: (penalty regime: 0 %)

```c
#include<stdio.h>
void func(int n){
    int count=0;
    if(n==1){
        count++;
        //printf("*");
    }
    else{
        count++;
        for(int i=1;i<=n;i++){
            count++;
            for(int j=1;j<=n;j++){
                count++;
                //printf("*");
                count++;
                //printf("*");
                count++;
                break;
                count++;
            }
            count++;
        }
        count++;
    }

    printf("%d ",count);
}
int main(){
    int n;
    scanf("%d",&n);
    func(n);
    return 0;
}
```

	Input	Expected	Got	
✔	2	12	12	✔
✔	1000	5002	5002	✔
✔	143	717	717	✔

Passed all tests! ✔

3

Started on	Saturday, 9 August 2025, 5:53 PM
State	Finished
Completed on	Saturday, 9 August 2025, 5:58 PM
Time taken	4 mins 15 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

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

```
Factor(num) {
{
   for (i = 1; i <= num;++i)
   {
    if (num % i== 0)
       {
         printf("%d ", i);
       }
    }
 }
```

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

Input:

A positive Integer n

Output:

Print the value of the counter variable

Answer:

```c
#include<stdio.h>
void factor(int num){
    int count=0;
    for(int i=1;i<=num;++i){
        count++;
        if(num%i==0){
            count++;

        }
        count++;

    }
    count++;
    printf("%d ",count);
}
int main(){
    int n;
    scanf("%d",&n);
    factor(n);
    return 0;
}
```

	Input	Expected	Got	
✔	12	31	31	✔
✔	25	54	54	✔
✔	4	12	12	✔

Passed all tests! ✔

4

Started on	Saturday, 9 August 2025, 5:58 PM
State	Finished
Completed on	Saturday, 9 August 2025, 6:03 PM
Time taken	4 mins 40 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

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

```c
#include<stdio.h>
void function(int n)
{
    int c= 0;
    int count=0;
    count++;
    for(int i=n/2; i<n; i++){
        count++;
        for(int j=1; j<n; j = 2 * j){
            count++;
            for(int k=1; k<n; k = k * 2){
                count++;
                c++;
                count++;
            }
            count++;
        }
        count++;
    }
    count++;
    printf("%d ",count);
}
int main(){
    int n;
    scanf("%d",&n);
    function(n);
    return 0;
}
```

	Input	Expected	Got	
✔	4	30	30	✔
✔	10	212	212	✔

Passed all tests! ✔

5

Started on	Saturday, 9 August 2025, 6:03 PM
State	Finished
Completed on	Saturday, 9 August 2025, 6:06 PM
Time taken	3 mins 24 secs
Marks	1.00/1.00
Grade	**10.00** out of 10.00 (**100**%)

Question 1 | Correct Mark 1.00 out of 1.00 Flag question

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

```
void reverse(int n)
{
   int rev = 0, remainder;
   while (n != 0)
    {
        remainder = n % 10;
        rev = rev * 10 + remainder;
        n/= 10;

    }
print(rev);
}
```

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:

```c
#include<stdio.h>
void reverse(int n)
{
   int rev = 0, remainder;
   int count=0;
   count++;//for rev
   count++;// for remainder
   while (n != 0)
    {
        count++;
        remainder = n % 10;
        count++;
        rev = rev * 10 + remainder;
        count++;
        n/= 10;
        count++;

    }
    count++;
    printf("%d ",count);
}
int main(){
    int n;
    scanf("%d",&n);
    reverse(n);
    return 0;
}
```

	Input	Expected	Got	
✔	12	11	11	✔
✔	1234	19	19	✔

Passed all tests! ✔