FINDING TIME COPLEXITY OF ALGORITHUMS

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

```c
#include<stdio.h>
int main(){
    int i=1,s=1,n,a;scanf("%d",&n);
    a=2;
    while(s<=n){
        i++;a++;
        s+=i;a++;
    }printf("%d",a+i);
}
```

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

Passed all tests! ✔

2.

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

```
1   #include<stdio.h>
2   void func(int n){int a=2;
3       if(n==1){
4           //printf("*");
5       }
6       else{
7           for(int i=1;i<=n;i++){a++;
8               for(int j=1;j<=n;j++){a++;
9                   //printf("*");
10                  a++;
11                  //printf("*");
12                  a++;
13                  a++;break;}}}
14      printf("%d",a);
15  }
16  int main(){
17      int n;scanf("%d",&n);
18      func(n);
19
20  }
```

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

3.

```
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

```c
1   #include<stdio.h>
2   void factor(int n){int a=0;
3       for(int i=1;i<=n;i++){a++;
4           if(n%i==0){a++;
5               //printf("%d",i);
6           }a++;
7       }
8       a++;
9       printf("%d",a);
10  }
11  int main(){
12      int n;scanf("%d",&n);
13      factor(n);
14  }
```

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

Passed all tests! ✔