FINDING TIME COMPLEXITY OF AN ALGORITHMS:-

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>
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! ✔

Correct

Marks for this submission: 1.00/1.00

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

```c
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
1   #include<stdio.h>
2   void func(int n){int a=2;
3       if(n==1){
4       }
5       else{
6           for(int i=1;i<=n;i++){
7               a++;
8               for(int j=1;j<=n;j++){
9                   a++;
10                  a++;
11                  a++;
12                  a++;
13                  break;}}}
14      printf("%d",a);
15  }
16  int main(){
17      int n;
18      scanf("%d",&n);
19      func(n);
20  }
21
```

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

Passed all tests! ✔

3) Convert the following algorithm into a program and find its time complexity using counter method.
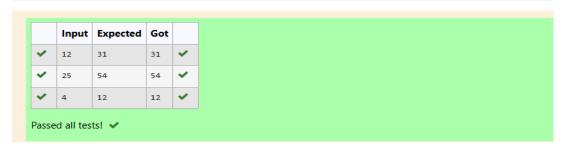
```
Factor(num) {
{
  for (i = 1; i <= num;++i)
  {
   if (num % i== 0)
    {
      printf("%d ", i);
    }
  }
}
}
```

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

Answer:

```
1  #include<stdio.h>
2  void factor(int n){
3      int a=0;
4      for(int i=1;i<=n;i++){a++;
5          if(n%i==0){a++;
6          }a++;
7      }
8      a++;
9      printf("%d",a);
10 }
11 int main(){
12     int n;
13     scanf("%d",&n);
14     factor(n);
15 }
16
17
```

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

Passed all tests! ✔

4) 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:
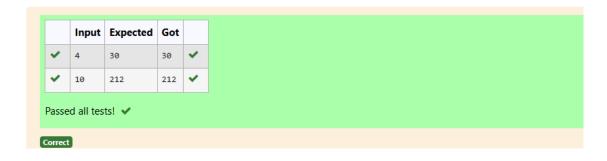Print the value of the counter variable

Answer:

```
1  #include<stdio.h>
2  void func(int n){
3      int c=0,a=1;
4      for(int i=n/2;i<n;i++){a++;
5          for(int j=1;j<n;j=2*j){a++;
6              for(int k=1;k<n;k=k*2){a++;
7                  c++;a++;
8              }a++;
9          }a++;
10     }a++;printf("%d",a);
11 }
12 int main(){
13     int a;scanf("%d",&a);
14     func(a);
15 }
16
```

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

Passed all tests! ✔

Correct

5) 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:

```
1   #include<stdio.h>
2 ▾ void reverse(int nu){
3       int rev=0,remainder,n=2;
4 ▾     while(nu!=0){n++;
5           remainder=nu%10;n++;
6           rev=rev*10+remainder;n++;
7           nu/=10;n++;
8       }n++;
9       printf("%d",n);
10  }
11 ▾ int main(){
12      int a;scanf("%d",&a);
13      reverse(a);
14  }
15
```

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

Passed all tests! ✔