

## Printing given table?

Eg: 9<sup>th</sup> table

$$9 * \mathbf{1} = 9$$

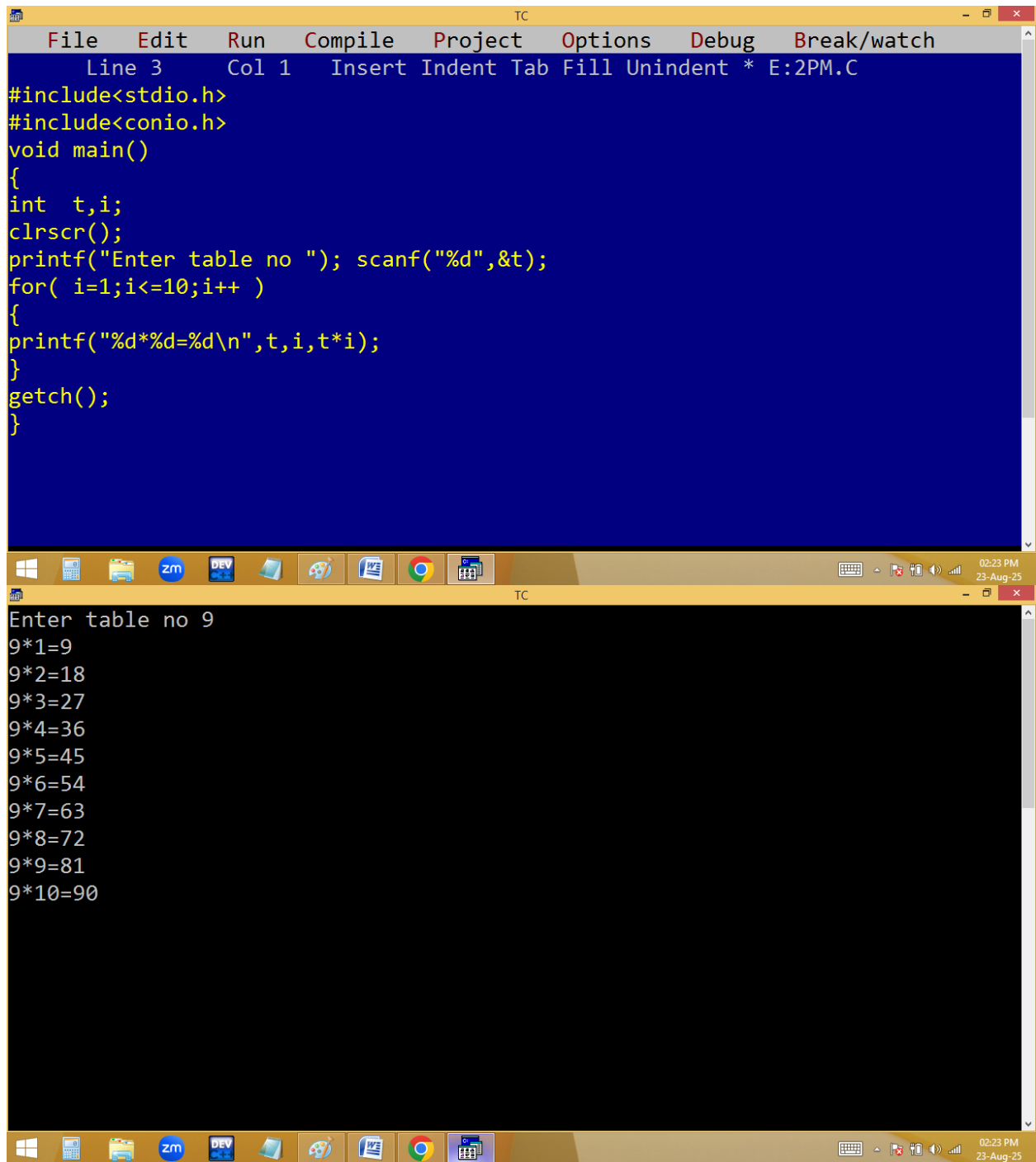
$$9 * 2 = 18$$

$$9 * 3 = 27$$

...

...

$$9 * \mathbf{10} = 90$$



The image displays two windows of the Turbo C++ (TC) IDE. The top window, titled 'TC', shows the source code for a file named 'E:2PM.C'. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int t,i;
clrscr();
printf("Enter table no "); scanf("%d",&t);
for( i=1;i<=10;i++ )
{
printf("%d*%d=%d\n",t,i,t*i);
}
getch();
}
```

The bottom window, also titled 'TC', shows the program's execution. It prompts the user to 'Enter table no 9' and then displays the multiplication table for 9, from 9\*1 to 9\*10.

```
Enter table no 9
9*1=9
9*2=18
9*3=27
9*4=36
9*5=45
9*6=54
9*7=63
9*8=72
9*9=81
9*10=90
```

The Windows taskbar at the bottom of the screen shows the time as 02:23 PM on 23-Aug-25, along with various system icons and application shortcuts.

$$\frac{t}{9} \times \frac{i}{1} = \frac{t \times i}{9}$$

for( i=1; i<=10; i++ )  
 {  
     9 \* 1 = 9  
 printf("%d \* %d = %d\n", t, i, t\*i);  
 }

2  
 3  
 -  
 -  
 10 = 90

**Print below series?**

n=5 → 1+2+3+4+5=15

The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program in a blue editor window. The code calculates the sum of the first five natural numbers. The bottom screenshot shows the same IDE with the program's output, where the user has entered '5' and the program has printed the sum '15'.

**Top Screenshot: Source Code**

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 19 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
printf("%d+",i,s+=i);
}
printf("\b=%d",s);
getch();
}
```

**Bottom Screenshot: Program Execution**

```
Enter the no 5
1+2+3+4+5=15
```

```

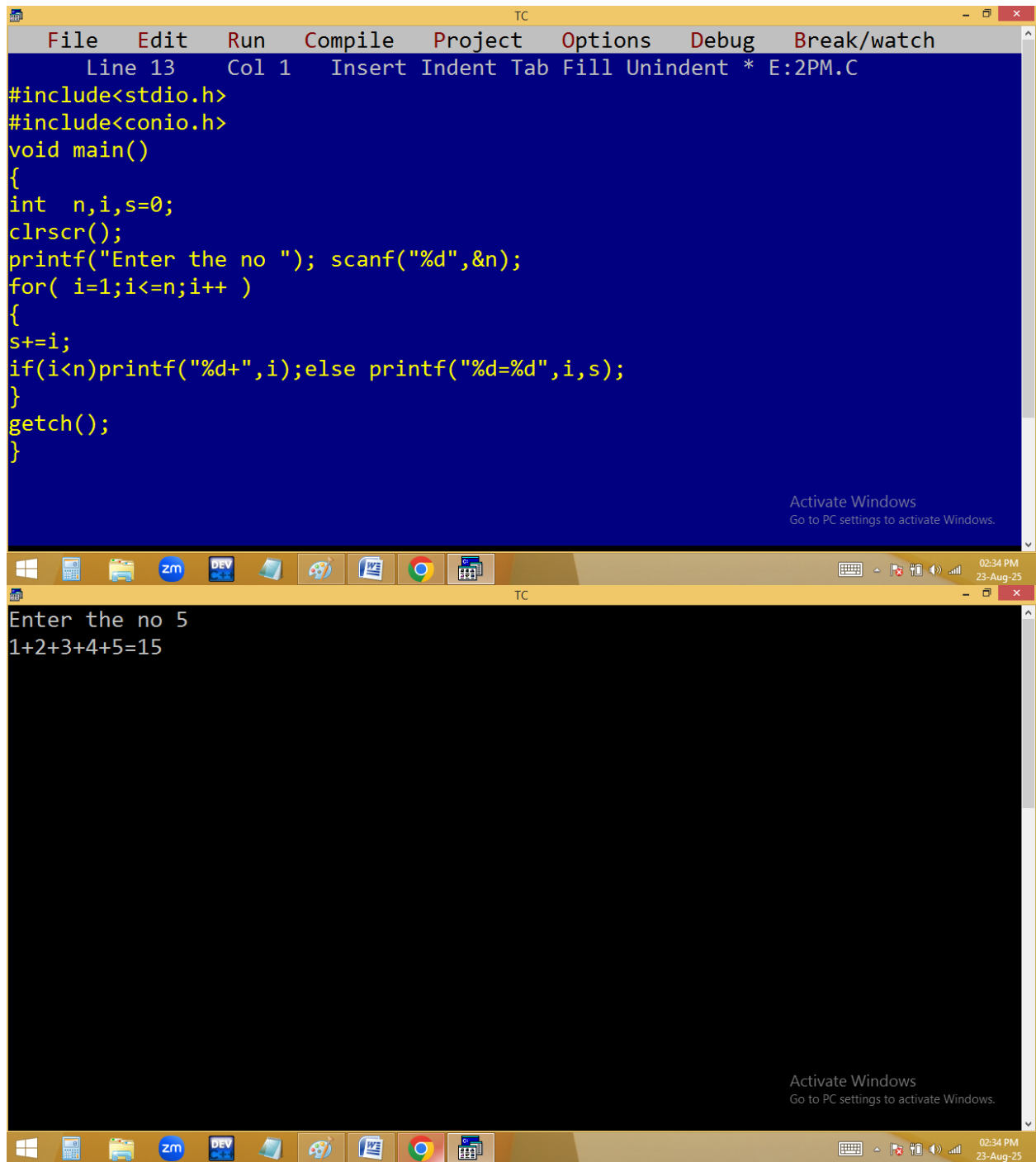
    ✓      ✓
for( i=1; i<= 5 ;i++ )
{
    printf("%d + ", i, s+=i );
}      1 + 2 + 3 + 4 + 5 = 15
      ↗ ↘
p("\b=%d",s);

```

<u>i</u>		<u>S</u>
1	+	0 = 1
2	+	1 = 3
3	+	3 = 6
4	+	6 = 10
5	+	10 = 15

1 +

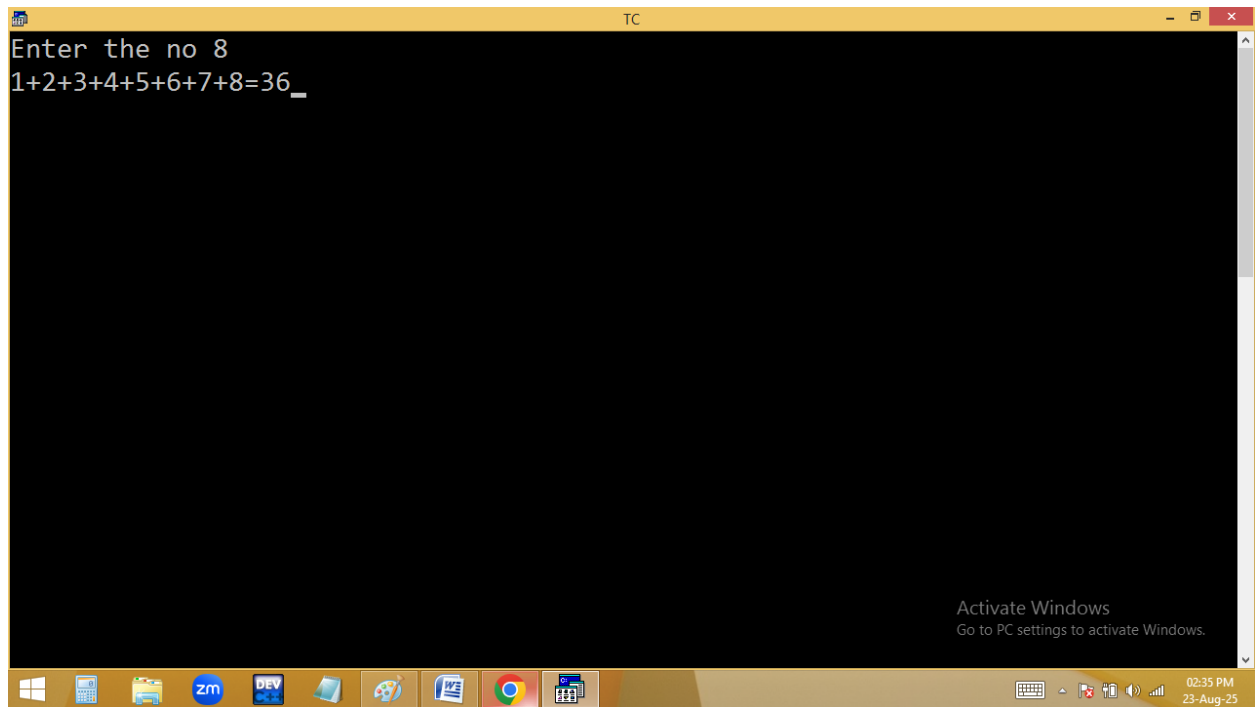
Without using \b:



The image displays two windows of the Turbo C++ IDE. The top window, titled 'TC', shows the source code for a C program named 'E:2PM.C'. The code calculates the sum of integers from 1 to a user-defined number 'n'. The bottom window, also titled 'TC', shows the program's execution. It prompts the user to 'Enter the no 5' and displays the output '1+2+3+4+5=15'. Both windows include a menu bar with options like File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The Windows taskbar at the bottom shows the time as 02:34 PM on 23-Aug-25.

```
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
s+=i;
if(i<n)printf("%d+",i);else printf("%d=%d",i,s);
}
getch();
}
```

Enter the no 5  
1+2+3+4+5=15



A screenshot of a Windows 10 desktop environment. A terminal window titled "TC" is open, displaying the text "Enter the no 8" and "1+2+3+4+5+6+7+8=36\_". The taskbar at the bottom shows various application icons including Windows, File Explorer, Zoom, DEV, and Google Chrome. The system tray on the right indicates the time as 02:35 PM on 23-Aug-25. An "Activate Windows" watermark is visible in the bottom right corner of the terminal window.

```
Enter the no 8
1+2+3+4+5+6+7+8=36_
```

**Print below series?**

$$n=5 \rightarrow 1^2+2^2+3^2+4^2+5^2=55$$

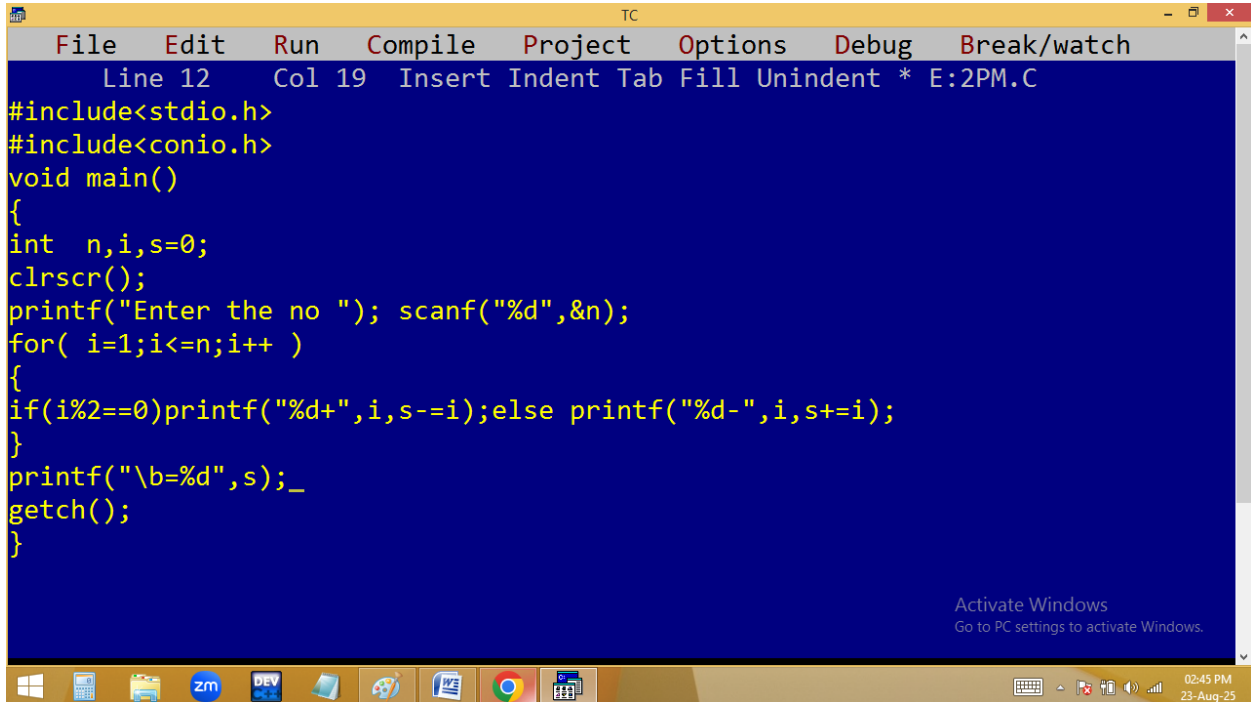
```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 58 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
s+=i*i;
if(i<n)printf("%d%c+",i,253);else printf("%d%c=%d",i,253,s);
}
getch();
}
```

Enter the no 5  
1<sup>2</sup>+2<sup>2</sup>+3<sup>2</sup>+4<sup>2</sup>+5<sup>2</sup>=55\_



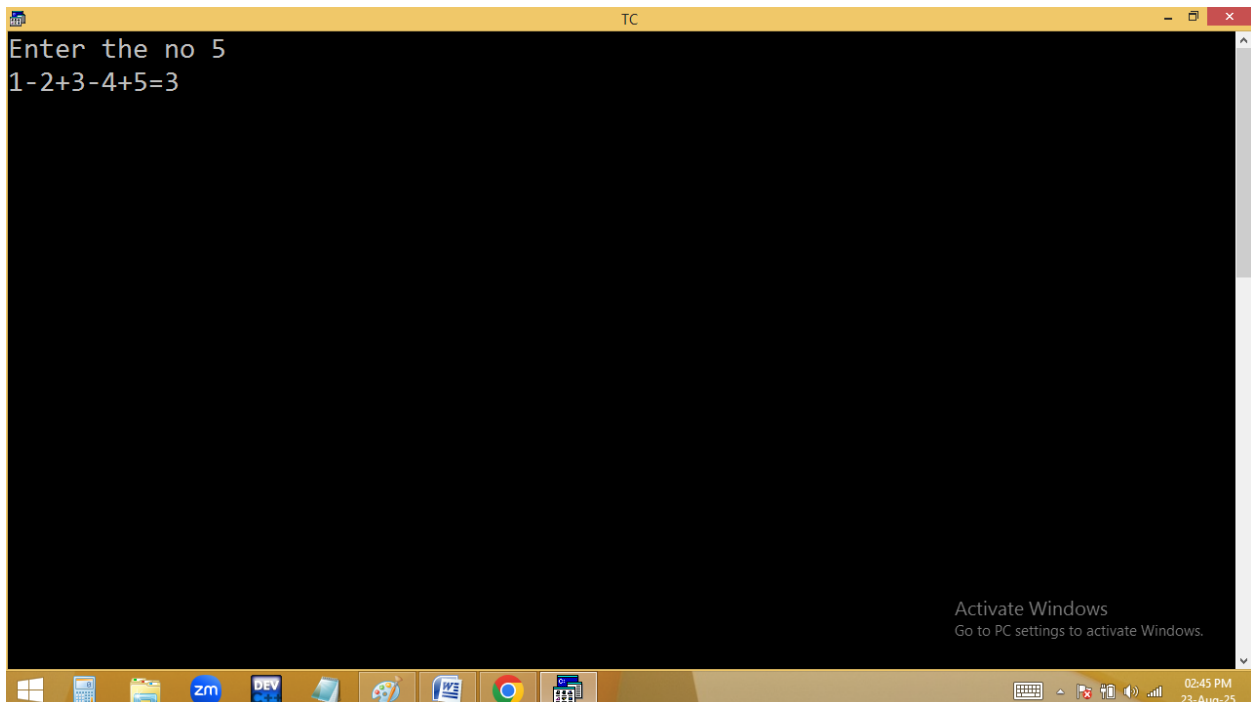
Print below series:

$n=5 \Rightarrow 1-2+3-4+5=3$



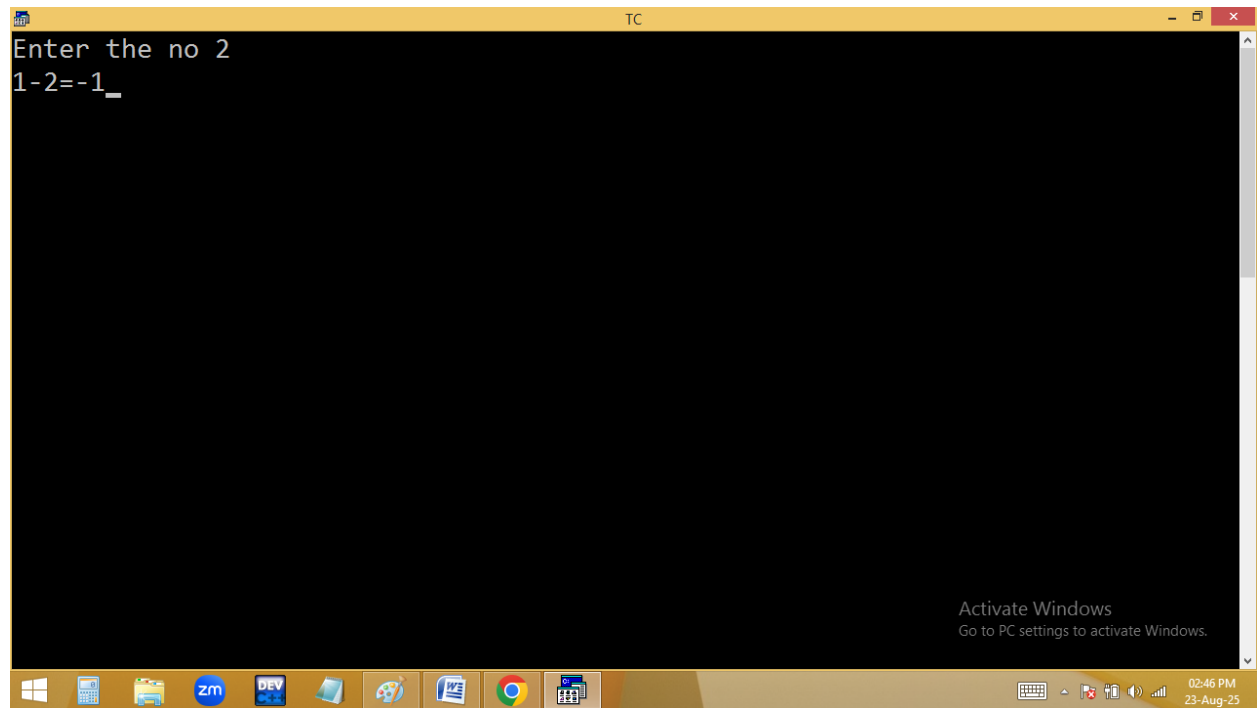
```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 19 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
if(i%2==0)printf("%d+",i,s-=i);else printf("%d-",i,s+=i);
}
printf("\nb=%d",s);_
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



```
Enter the no 5
1-2+3-4+5=3
```

Activate Windows  
Go to PC settings to activate Windows.



```

Enter the no 10
1-2+3-4+5-6+7-8+9-10=-5

```

```

    ✓
    2+4+
if(i%2==0) p("%d+",i,s+=i);
else p("%d-",i,s+=i);
    1-3-5-

p(s);

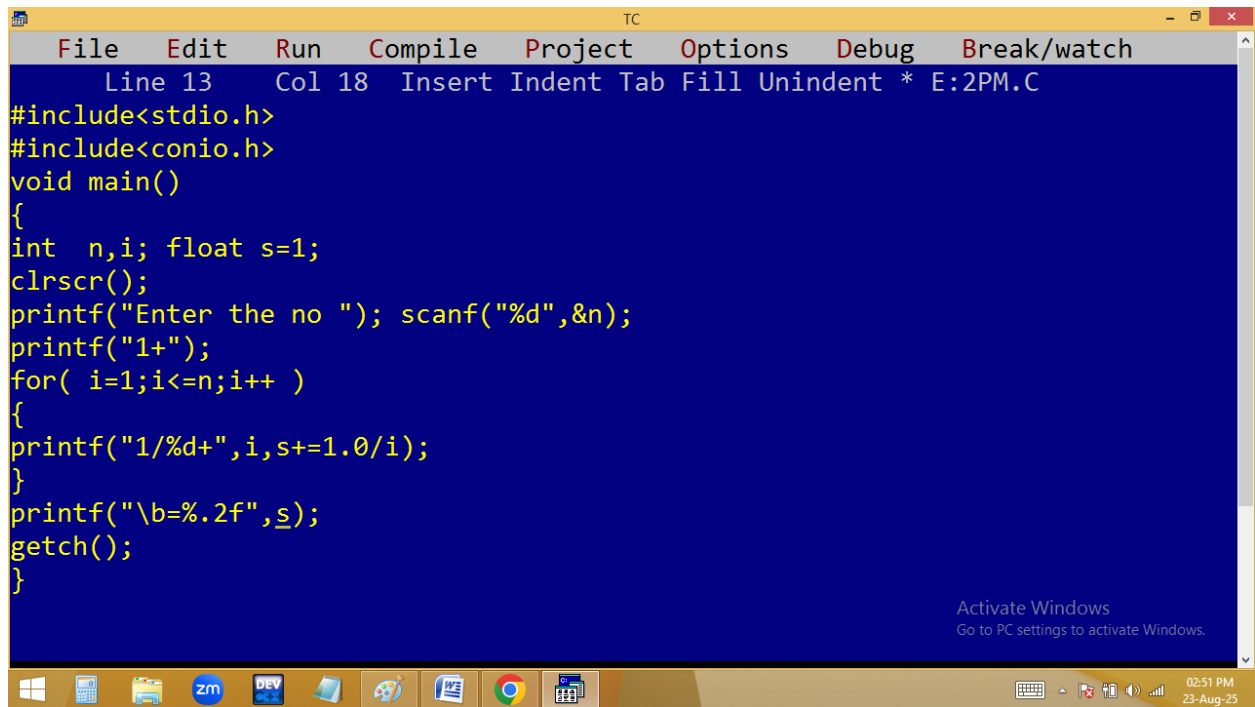
```

$1 - 2 + 3 - 4 + 5$   
 $\frac{s}{0+1=1}$   
 $1-2=-1$   
 $-1+3=2$   
 $2-4=-2$   
 $-2+5=3$  ✓

$1 + 3 + 5 = 9$   
 $-2 + -4 = -6$   
 $\frac{-6}{3}$

Print below **Harmonic** series:

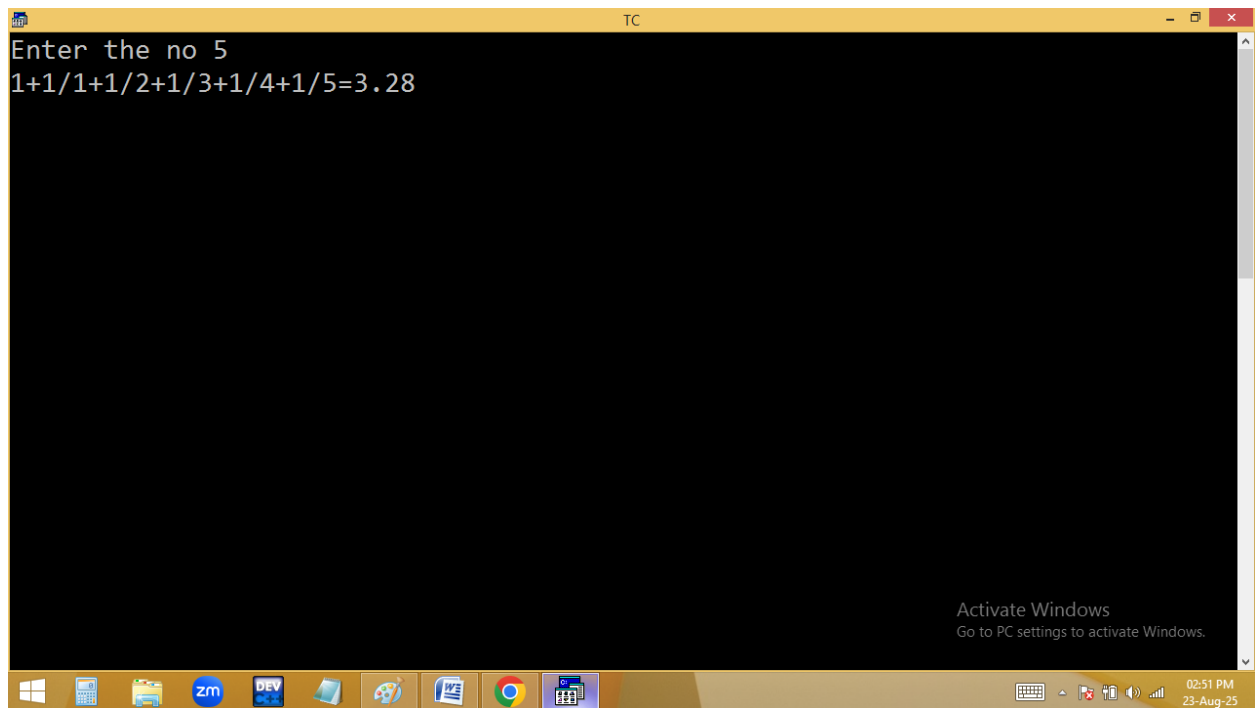
$$n=5 \rightarrow 1 + \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} = 3.28$$



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 13 Col 18 Insert Indent Tab Fill Unindent \* E:2PM.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i; float s=1;
clrscr();
printf("Enter the no "); scanf("%d",&n);
printf("1+");
for( i=1;i<=n;i++ )
{
printf("1/%d+",i,s+=1.0/i);
}
printf("\b=%.2f",s);
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window.



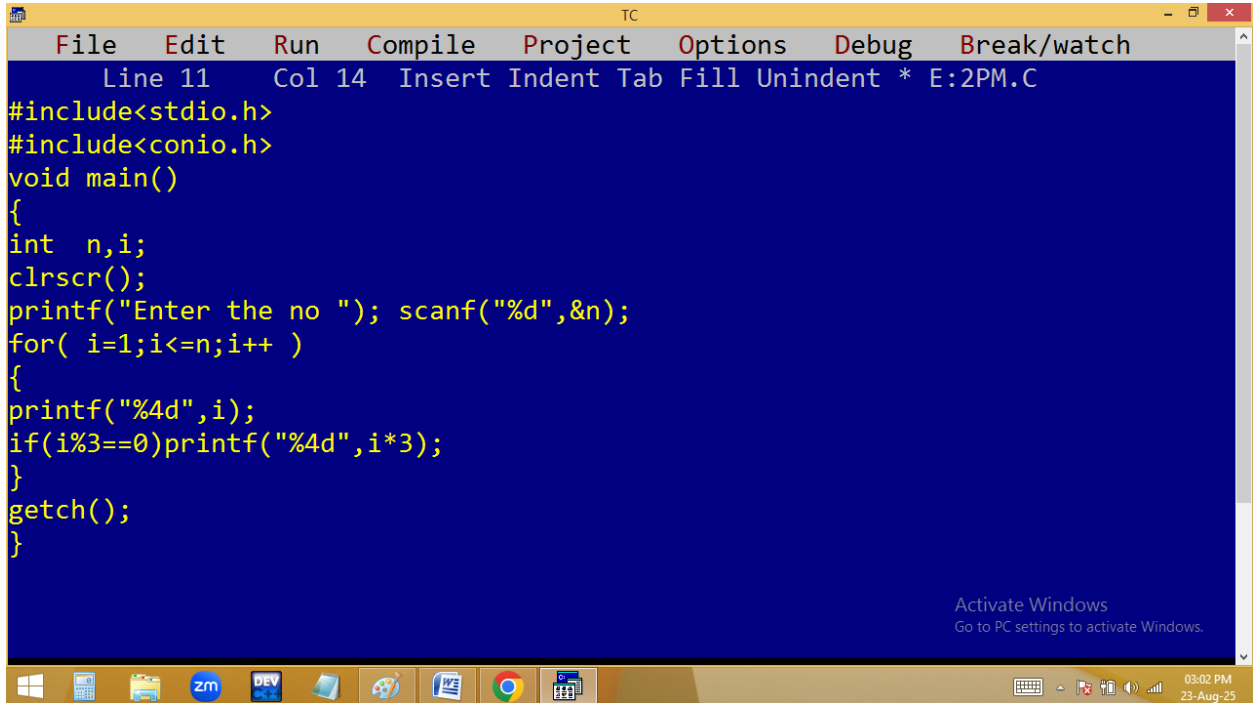
The screenshot shows the same Turbo C++ IDE window after execution. The output is displayed on a black background:

```
Enter the no 5
1+1/1+1/2+1/3+1/4+1/5=3.28
```

The 'Activate Windows' watermark is also present in the bottom right corner.

## Print below series?

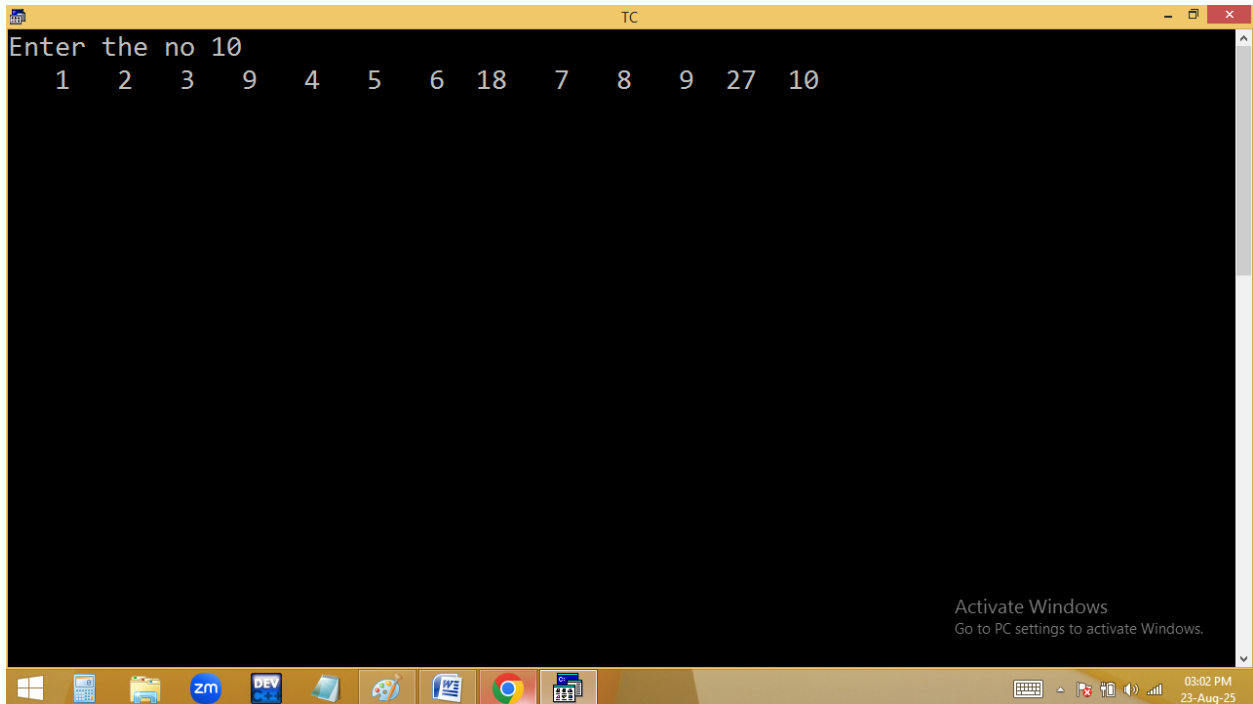
n=10 → 1 2 3 9 4 5 6 18 7 8 9 27 10



```
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 14 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
printf("%4d",i);
if(i%3==0)printf("%4d",i*3);
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.

03:02 PM  
23-Aug-25



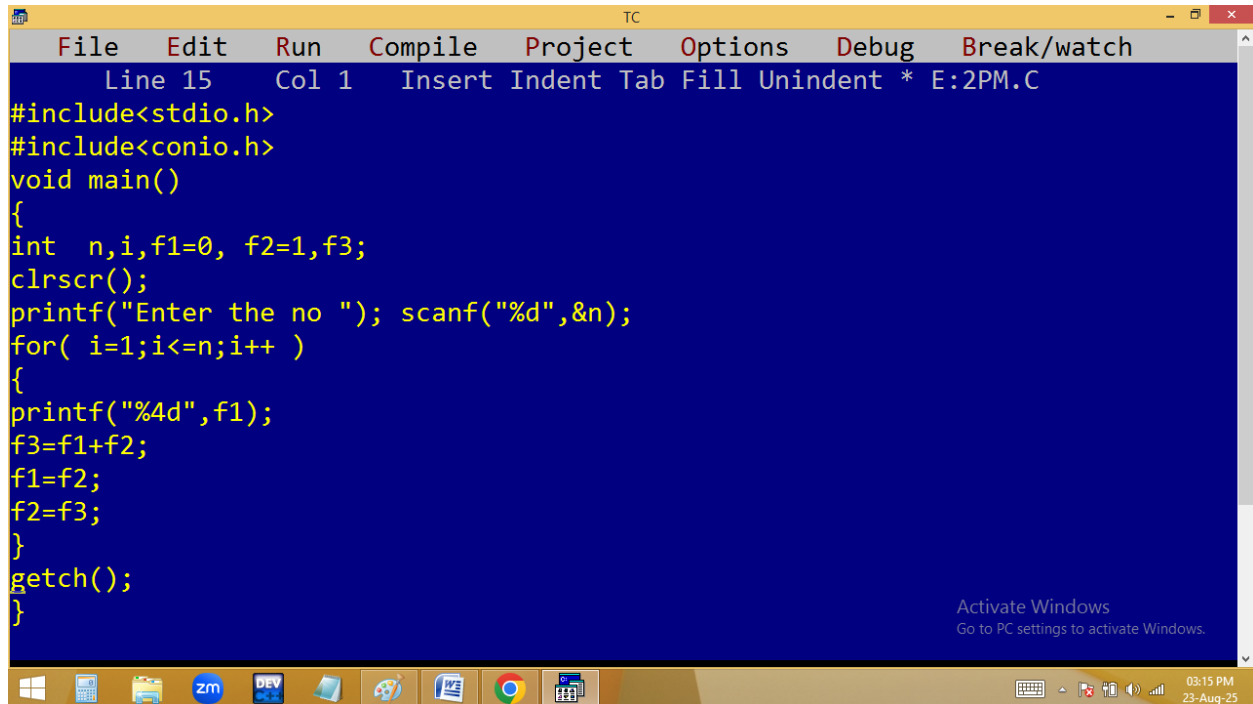
```
Enter the no 10
1 2 3 9 4 5 6 18 7 8 9 27 10
```

Activate Windows  
Go to PC settings to activate Windows.

03:02 PM  
23-Aug-25

# Fibonacci series:

n=5 → 0 1 1 2 3



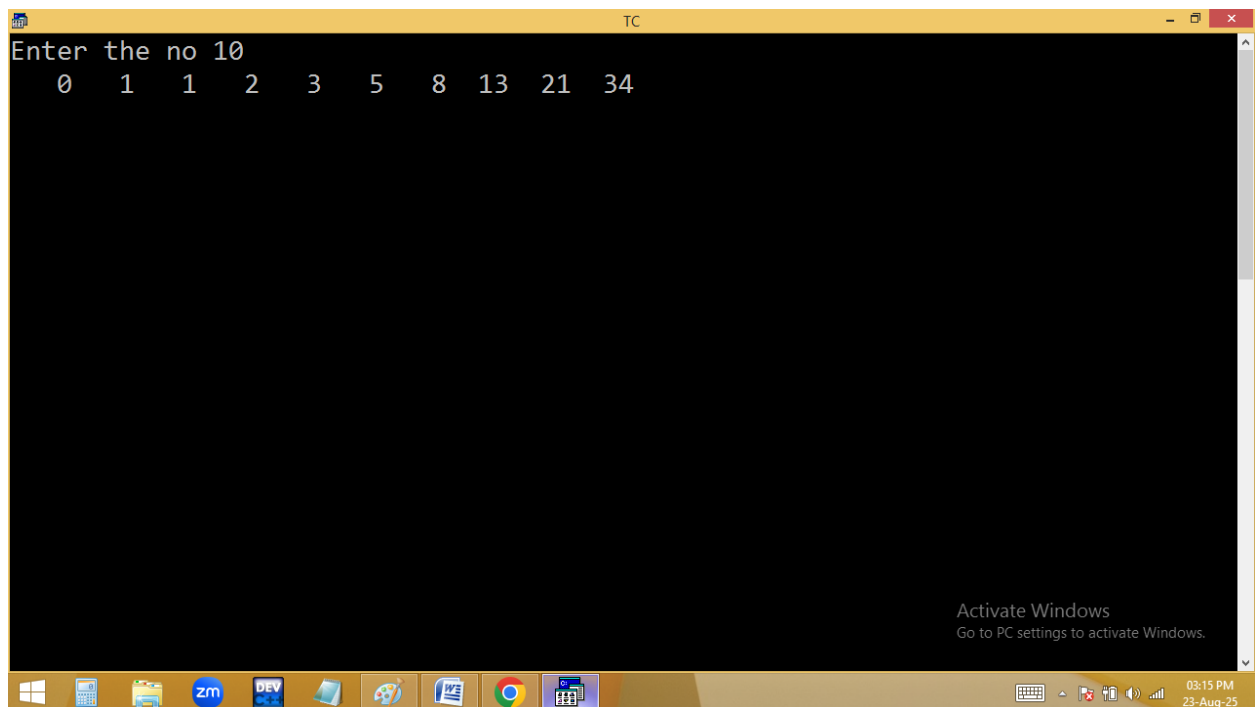
```
File Edit Run Compile Project Options Debug Break/watch
Line 15 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,f1=0, f2=1,f3;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( i=1;i<=n;i++ )
{
printf("%4d",f1);
f3=f1+f2;
f1=f2;
f2=f3;
}
getch();
}
```

Activate Windows  
Go to PC settings to activate Windows.



```
Enter the no 5
0 1 1 2 3
```

Activate Windows  
Go to PC settings to activate Windows.



```

for(i=1; i<=n; i++) ✓✓
{
  p(f1); ✓
  f3=f1+f2;
  f1=f2; ✓
  f2=f3; ✓
}

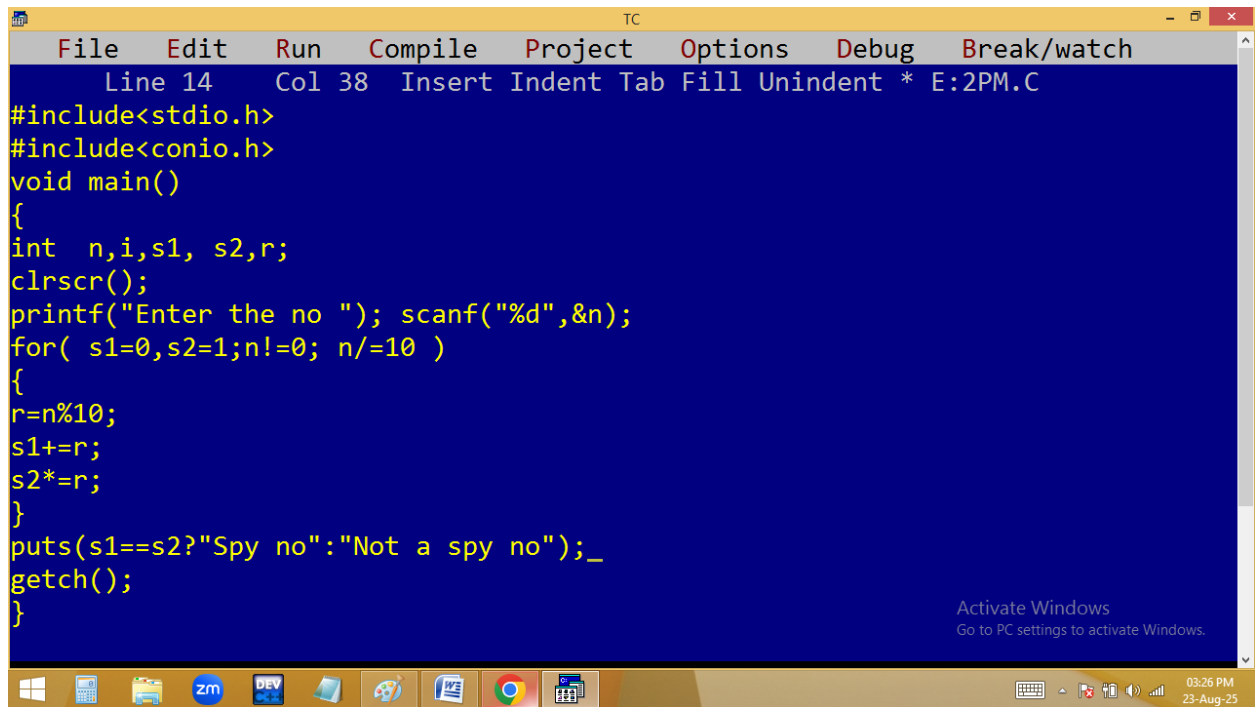
```

$\frac{n}{5}$	$i$	$f1$		$f2$		$f3$
	1	✓ 0	+	1	→	1
	2	✓ 1	←	1	→	2
	3	✓ 1	←	2	→	3
	4	✓ 2	+	3	→	5
	5	✓ 3		5		
	6					

## Finding spy no or not?

123 → 1+2+3=6 or 1\*2\*3=6

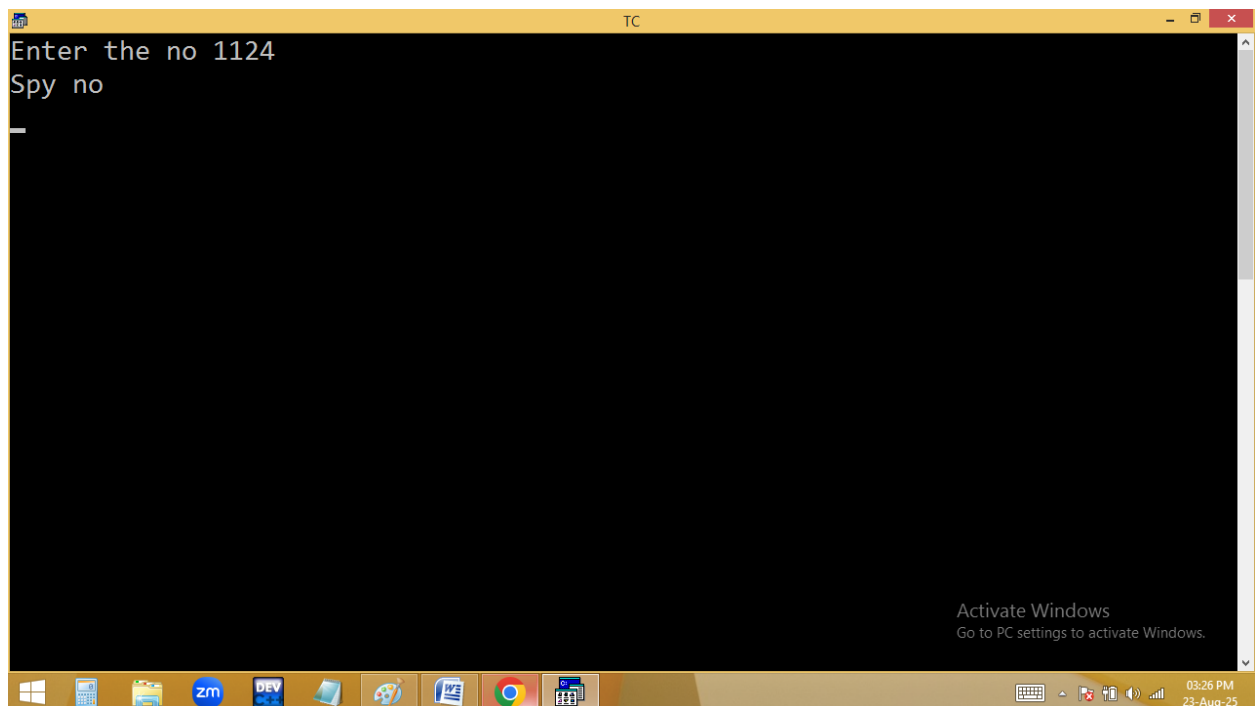
1124 → 1+1+2+4=8 or 1\*1\*2\*4=8



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a toolbar. The main window has a blue background and displays the following C code:

```
Line 14 Col 38 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s1, s2,r;
clrscr();
printf("Enter the no "); scanf("%d",&n);
for( s1=0,s2=1;n!=0; n/=10 )
{
r=n%10;
s1+=r;
s2*=r;
}
puts(s1==s2?"Spy no":"Not a spy no");_
getch();
}
```

An "Activate Windows" watermark is visible in the bottom right corner of the code editor.

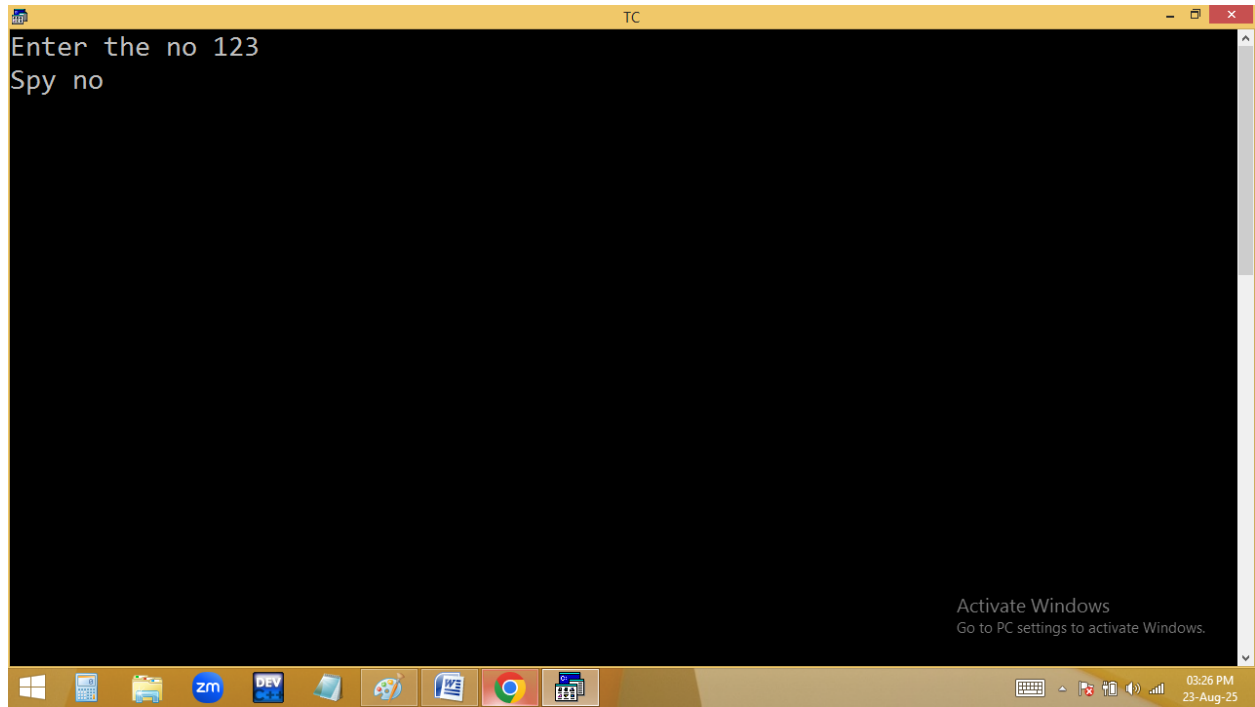


The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and toolbar. The main window now has a black background and displays the program's output:

```
Enter the no 1124
Spy no
```

An "Activate Windows" watermark is visible in the bottom right corner of the code editor.





```
TC
Enter the no 234
Not a spy no
```

Activate Windows  
Go to PC settings to activate Windows.

03:27 PM  
23-Aug-25

	<u>n</u>	<u>r</u>	<u>s1</u>	<u>s2</u>
	1124		0+4=4	1x4=4
	112		4+2=6	4x2=8
	11		6+1=7	8x1=8
	1		7+1=8	8x1=8

for (s1=0, s2=1; n!=0; n/=10)

r=n%10; ✓✓

s1+=r; ✓

s2\*=r; ✓

}

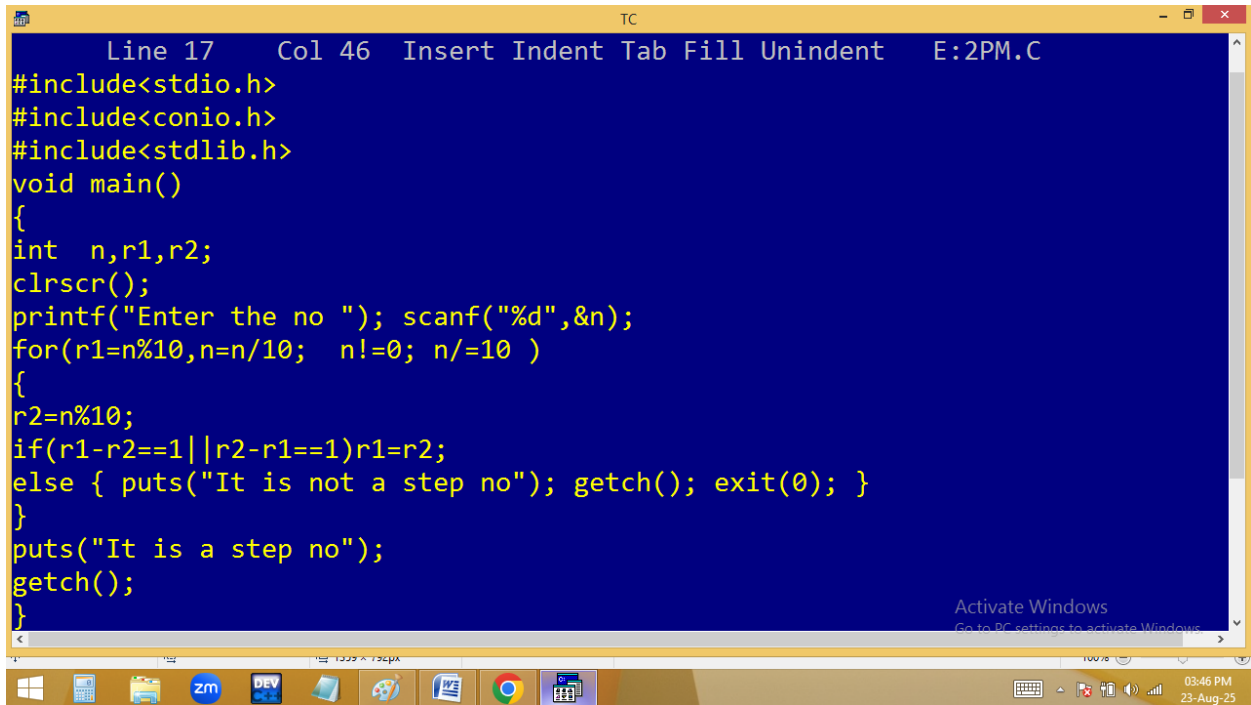
puts(s1==s2?"Spy no":"Not a Spy no");

Handwritten notes and arrows: Blue arrows point from the code to the table. A red arrow points from the loop condition `n!=0` to the first row of the table. A red arrow points from the `s1==s2` condition to the final output.

## Finding step no or not?

1234 , 4321, 5678,...

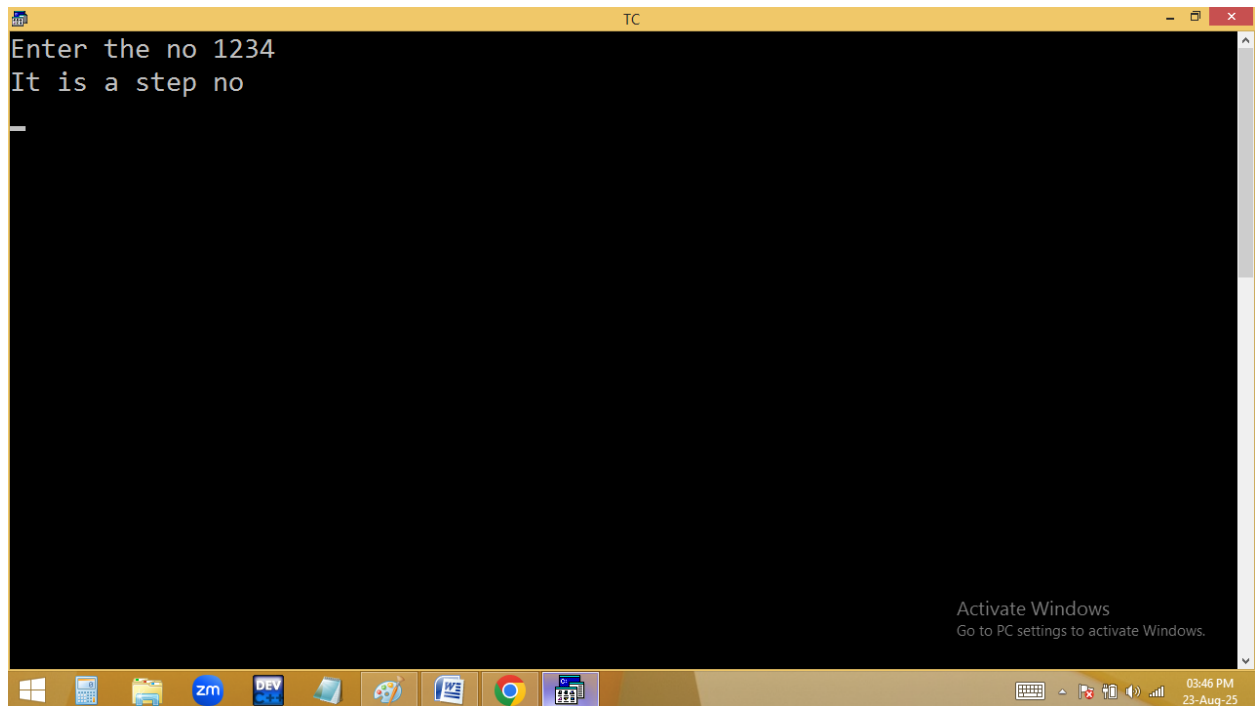
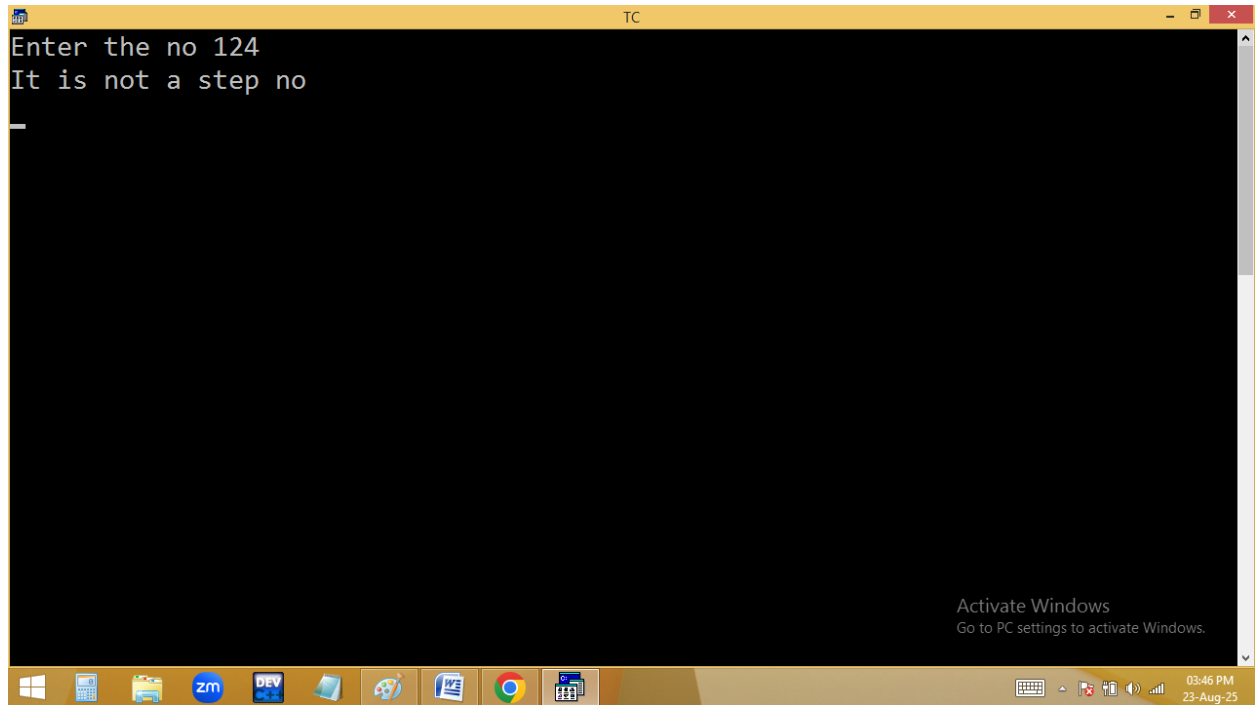
5677 ← not a step no

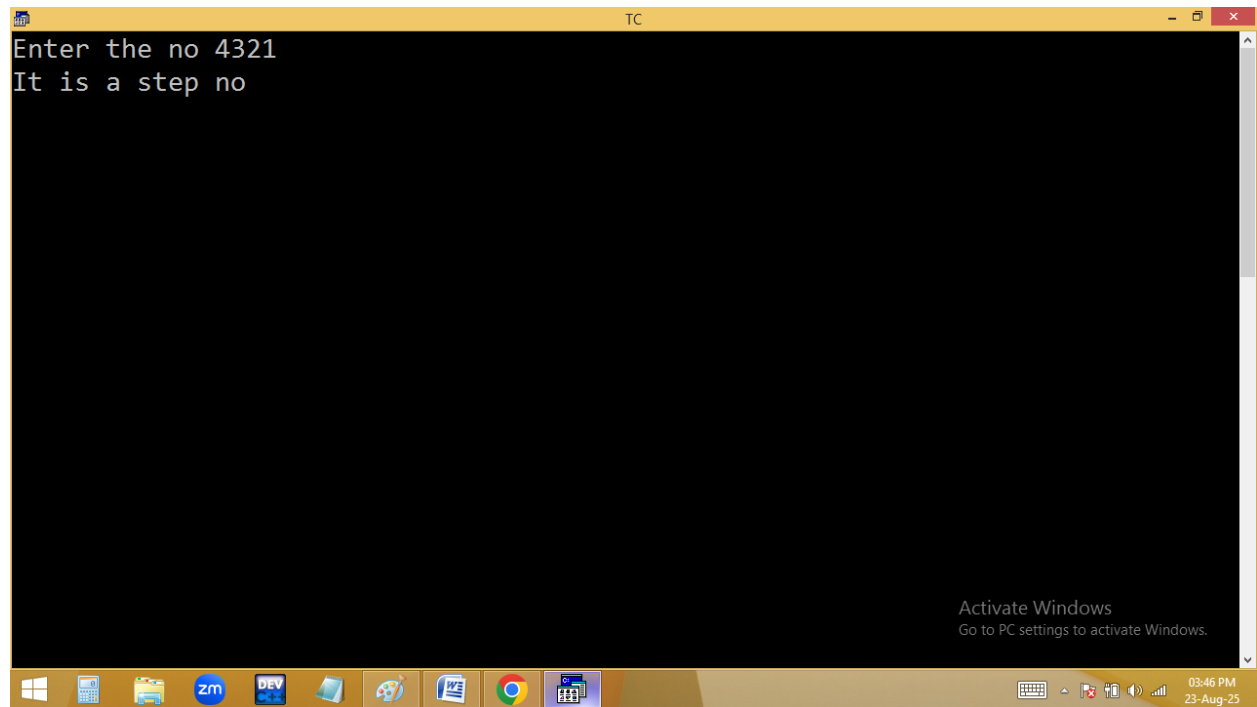


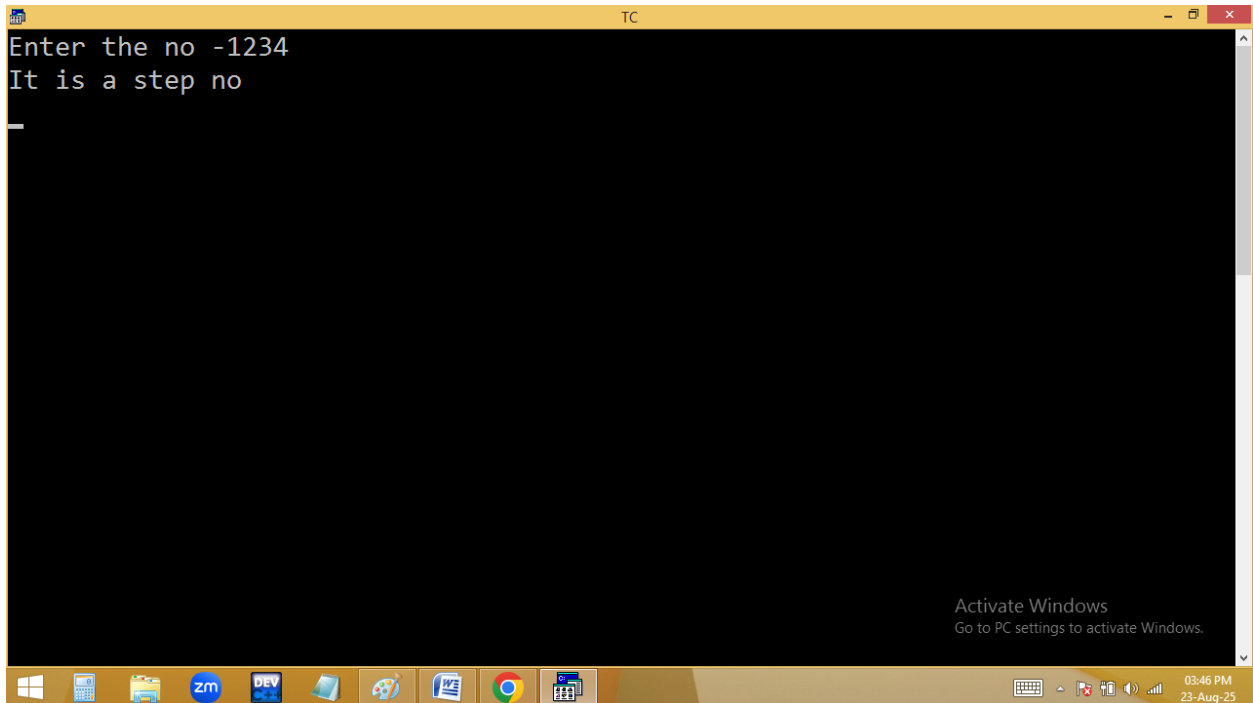
The screenshot shows a Turbo C++ (TC) window with a blue background and yellow text. The window title is "TC". The menu bar includes "Line 17", "Col 46", "Insert", "Indent", "Tab", "Fill", "Unindent", and "E:2PM.C". The code is as follows:

```
#include<stdio.h>
#include<conio.h>
#include<stdlib.h>
void main()
{
    int n,r1,r2;
    clrscr();
    printf("Enter the no "); scanf("%d",&n);
    for(r1=n%10,n=n/10; n!=0; n/=10 )
    {
        r2=n%10;
        if(r1-r2==1||r2-r1==1)r1=r2;
        else { puts("It is not a step no"); getch(); exit(0); }
    }
    puts("It is a step no");
    getch();
}
```

The Windows taskbar is visible at the bottom, showing icons for Windows, a calculator, a folder, a ZOOM application, a DEV application, a paint application, a notepad application, a Google Chrome application, and a calendar application. The system tray on the right shows the time as 03:46 PM and the date as 23-Aug-25. An "Activate Windows" watermark is visible in the bottom right corner of the TC window.







Handwritten annotations and code for checking a step number:

$$\begin{array}{r} n \\ 1234 \end{array} \quad \begin{array}{r} r1 \\ 1234 \end{array} \quad \begin{array}{r} r2 \\ 3 \end{array}$$

$$1234 \% 10 = 4$$

$$123 \% 10 = 3$$

$$12 \% 10 = 2$$

$$1 \% 10 = 1$$

for( r1 = n%10, n/=10 ; n !=0 ; n/=10)
 {
 r2=n%10;
 if( r1-r2==1 || r2-r1==1) r1=r2;
 else {p("Not a step no");getch(); exit(0);}
 }
 p("Step no");

Handwritten calculation:  $5677 : 0$  with arrows pointing to 7 and 2.

## Home work:

**Find perfect no or not? Sum of factors is equal to given no**

Eg: 6, 28 are perfect no's

**6** factors are  $1+2+3=6$

**28** factors are  $1+2+4+7+14=28$

**Find prime no or not? No having 2 factors or divisible with 1 and itself only.**

2 divisible with 1 and 2 only ← prime

3 divisible with 1 and 3 only ← prime

4 divisible with 1, 2, 4 only ← composite no