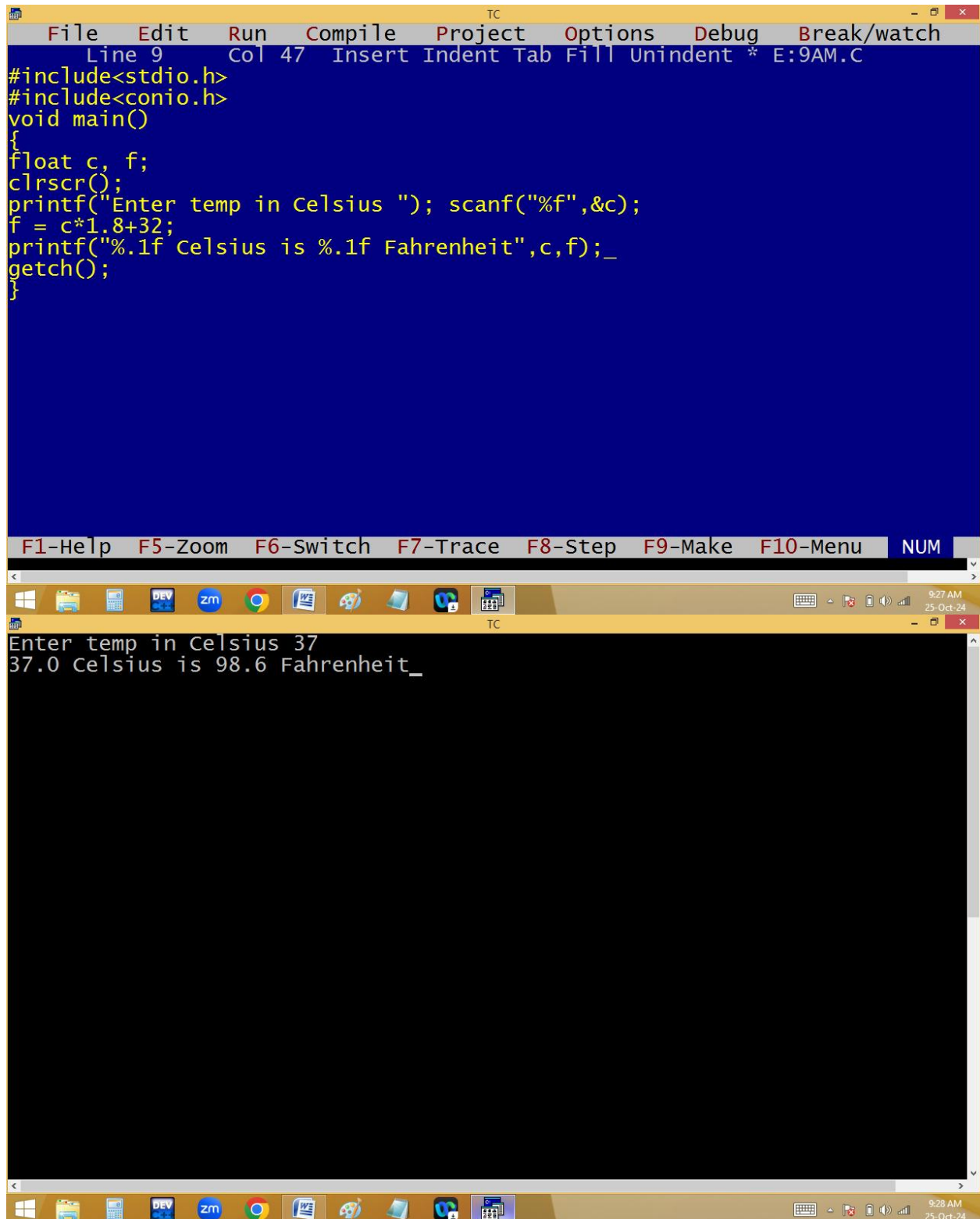


Celsius to Fahrenheit:

$$F = c * 1.8 + 32$$



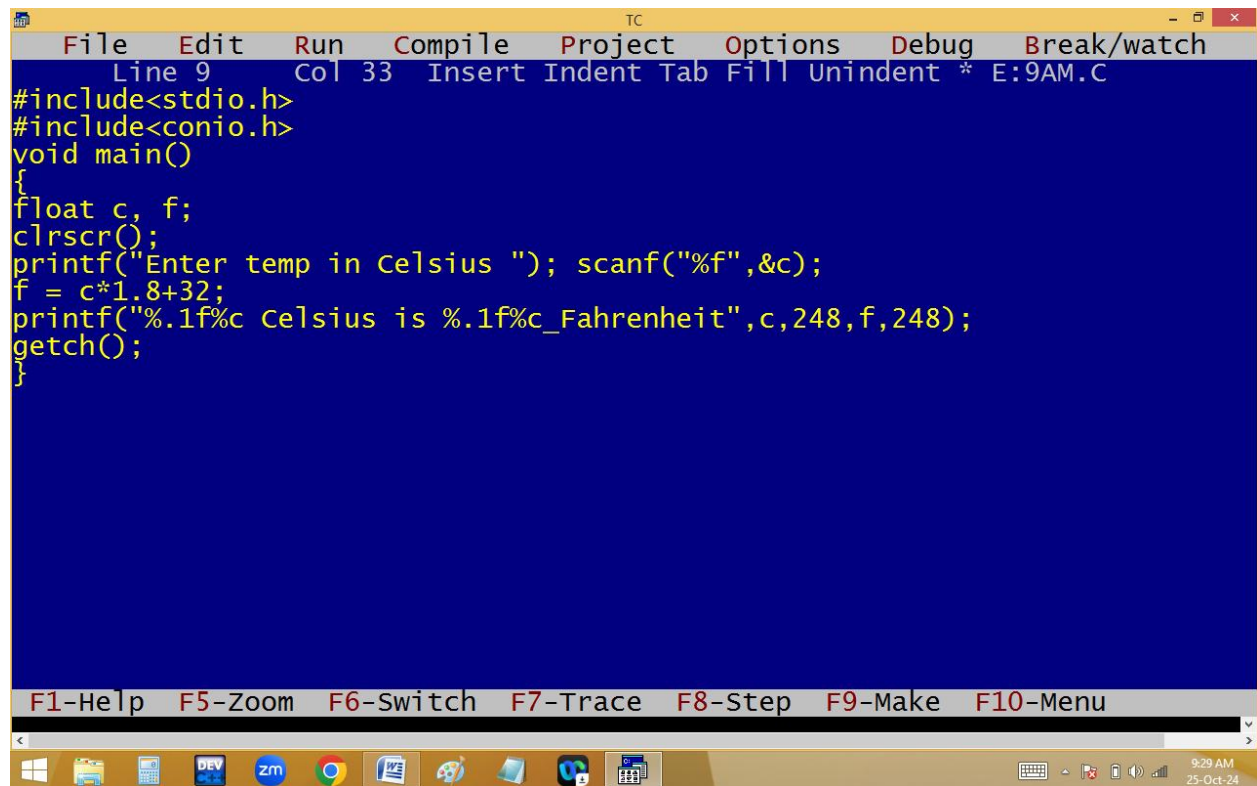
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program for converting Celsius to Fahrenheit. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 47 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
float c, f;
clrscr();
printf("Enter temp in Celsius "); scanf("%f",&c);
f = c*1.8+32;
printf("%.1f Celsius is %.1f Fahrenheit",c,f);_
getch();
}
```

Below the code editor, a function key bar shows shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The bottom window shows the program's execution output:

```
Enter temp in Celsius 37
37.0 Celsius is 98.6 Fahrenheit_
```

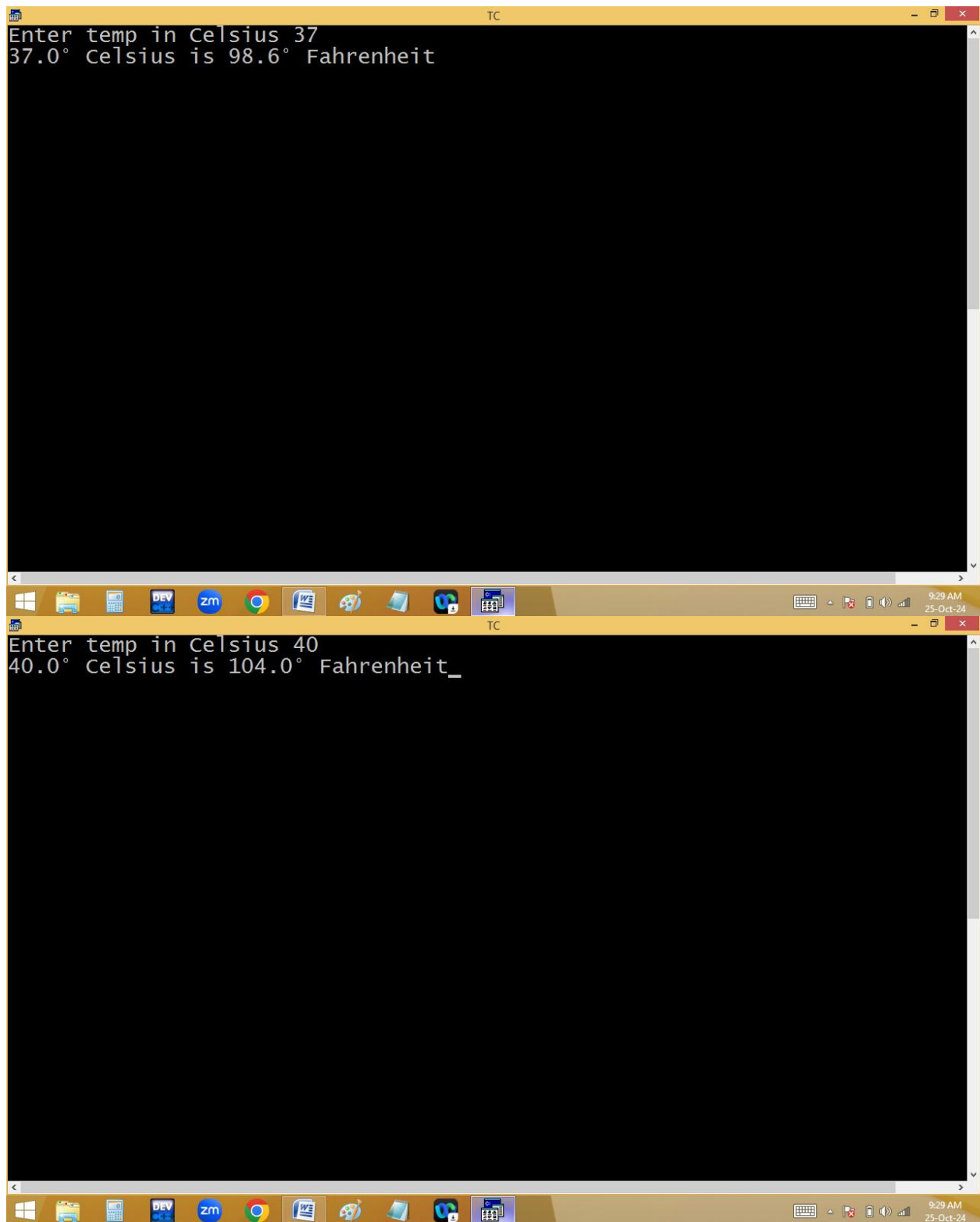
The Windows taskbar at the bottom includes icons for various applications and the system clock, which shows 9:27 AM on 25-Oct-24.



The image shows a screenshot of a Turbo C++ (TC) IDE window. The window has a yellow title bar with the text "TC" and standard window controls. The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 9", "Col 33", and "Insert Indent Tab Fill Unindent * E:9AM.C". The main editing area has a dark blue background with yellow text. The code is as follows:

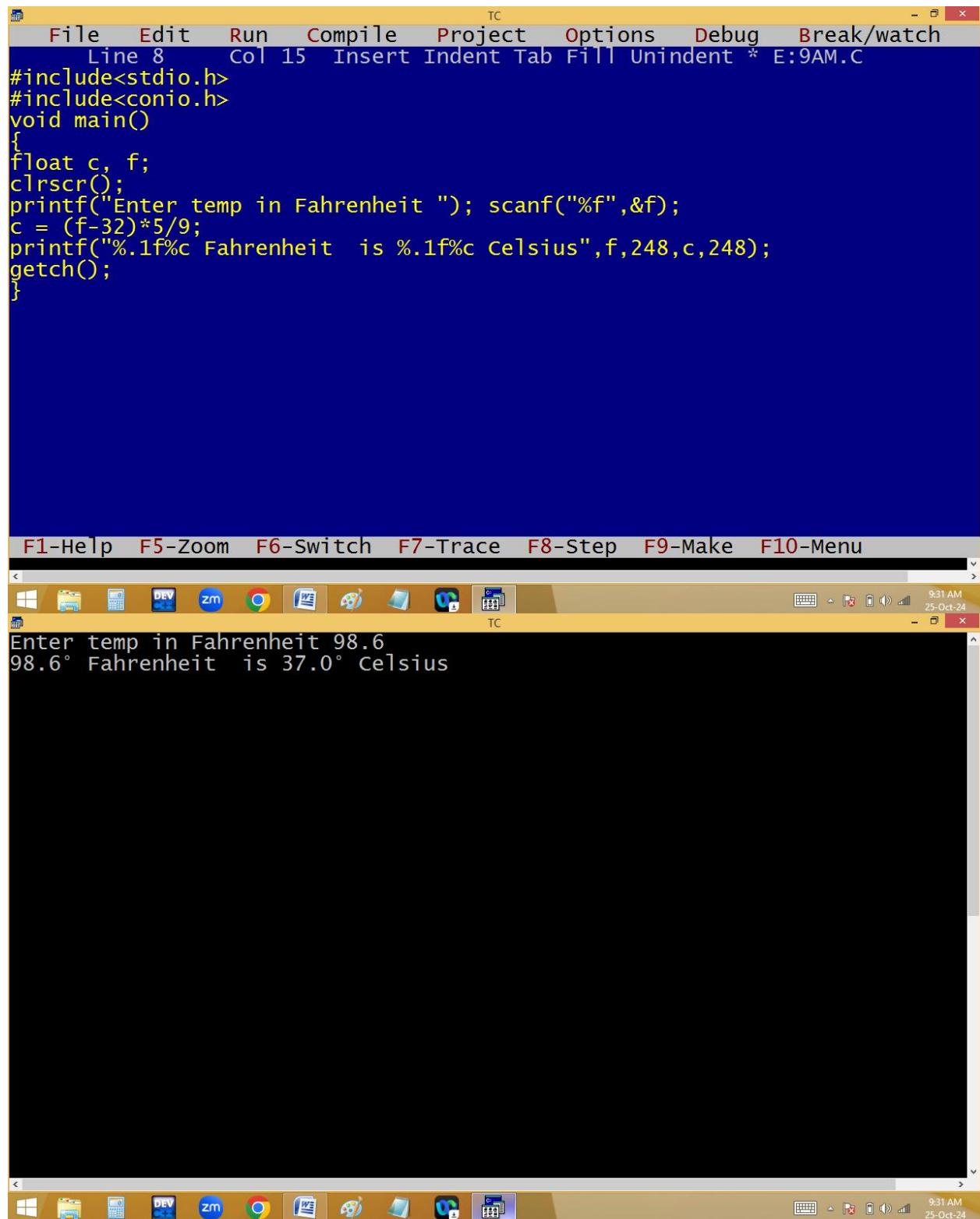
```
#include<stdio.h>
#include<conio.h>
void main()
{
float c, f;
clrscr();
printf("Enter temp in Celsius "); scanf("%f",&c);
f = c*1.8+32;
printf("%.1f°C Celsius is %.1f°F Fahrenheit",c,248,f,248);
getch();
}
```

Below the code editor, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Menu". At the bottom of the screen is the Windows taskbar, which includes icons for the Start menu, File Explorer, a calculator, a terminal, a Zoom application, Google Chrome, a document, a folder, and a task manager. The system clock in the bottom right corner shows "9:29 AM" and "25-Oct-24".



Fahrenheit to Celsius:

$$C = f - 32 \times 5/9$$



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a program that converts Fahrenheit to Celsius. The code includes standard headers, declares variables, and uses printf and scanf for input/output. The bottom window shows the program's execution, where the user has entered 98.6 as the temperature in Fahrenheit, and the program has outputted 37.0 as the equivalent temperature in Celsius.

```
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 15 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
float c, f;
clrscr();
printf("Enter temp in Fahrenheit "); scanf("%f",&f);
c = (f-32)*5/9;
printf("%.1f° Fahrenheit is %.1f° Celsius",f,248,c,248);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter temp in Fahrenheit 98.6
98.6° Fahrenheit is 37.0° Celsius

Finding simple interest:

$$p \cdot t \cdot r / 100$$

$$\begin{array}{r} 1000 \\ 250 \\ \hline \text{Tot} = 1250 \end{array}$$

$$10$$

$$\begin{array}{r} 2.5 \times 100 \times 10 \\ \hline 25 \times 10 = 250 \end{array}$$

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program that calculates simple interest. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares variables `p`, `r`, `si`, `tot` as floats and `t` as an integer. It prompts the user to enter the principle, time, and rate of interest, reads the input using `scanf`, calculates the simple interest (`si = p*t*r/100`), calculates the total amount (`tot = p + si`), and prints the results using `printf`. The bottom window shows the program's execution output, where the user has entered the values 1000, 10, and 2.5, resulting in a simple interest of 250.00 and a total of 1250.00.

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 36 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
float p,r,si,tot;
int t;
clrscr();
printf("Enter the principle, time and rate of interest ");
scanf("%f %d %f",&p, &t, &r);
si = p*t*r/100;
tot = p + si;
printf("Si=%.2f, Total=%.2f",si,tot);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter the principle, time and rate of interest 1000 10 2.5
Si=250.00, Total=1250.00_

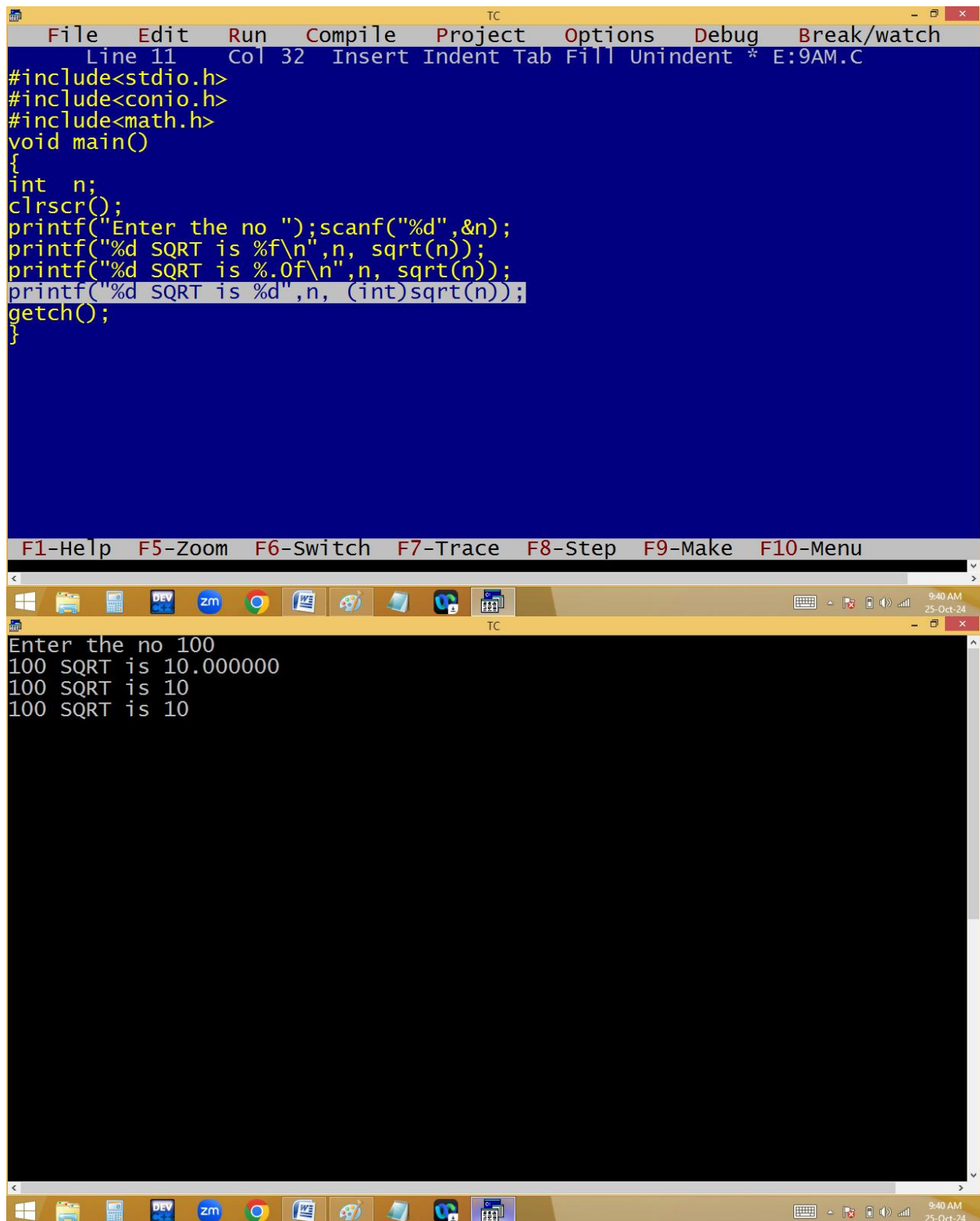
Finding sqrt of given no:

100 sqrt is 10


```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 17 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>_
void main()
{
int n;
clrscr();
printf("Enter the no ");scanf("%d",&n);
printf("%d SQRT is %d",n, sqrt(n));
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter the no 100
100 SQRT is 0



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 32 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
int n;
clrscr();
printf("Enter the no ");scanf("%d",&n);
printf("%d SQRT is %f\n",n, sqrt(n));
printf("%d SQRT is %.0f\n",n, sqrt(n));
printf("%d SQRT is %d",n, (int)sqrt(n));
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter the no 100
100 SQRT is 10.000000
100 SQRT is 10
100 SQRT is 10

Read two numbers and perform all arithmetic operations

[+ , - , * , % , /]:

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code for a C program named 'E:9AM.C'. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares integer variables `a, b, c, d, e, f, g`, clears the screen with `clrscr()`, and prompts the user to enter two numbers. It then calculates the sum, difference, product, modulus, and division of the two numbers, and prints each result on a new line. The bottom window shows the program's execution output, where the user has entered '5' and '2', resulting in the following calculations: Sum=7, Sub=3, Pro=10, Mod=1, and Div=2. The IDE's menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the bottom of the IDE shows the current line (17) and column (12). The Windows taskbar at the very bottom shows the system clock as 9:50 AM on 25-Oct-24.

```
File Edit Run Compile Project Options Debug Break/watch
Line 17 Col 12 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c,d,e,f,g;
clrscr();
printf("Enter two no's ");scanf("%d%d",&a,&b);
c=a+b;
d=a-b;
e=a*b;
f=a%b;
g=a/b;
printf("Sum=%d\n",c);
printf("Sub=%d\n",d);
printf("Pro=%d\n",e);
printf("Mod=%d\n",f);
printf("Div=%d\n",g);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter two no's 5 2
Sum=7
Sub=3
Pro=10
Mod=1
Div=2

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares two integers `a` and `b`, clears the screen with `clrscr()`, and prompts the user to enter two numbers. It then calculates and prints the sum, difference, product, modulus, and division of the two numbers. The bottom window shows the program's execution output, where the user has entered 5 and 2, resulting in the calculated values.

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 22 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter two no's ");scanf("%d%d",&a,&b);
printf("Sum=%d\n",a+b);
printf("Sub=%d\n",a-b);
printf("Pro=%d\n",a*b);
printf("Mod=%d\n",a%b);
printf("Div=%d\n",a/b);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter two no's 5 2
Sum=7
Sub=3
Pro=10
Mod=1
Div=2

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program for performing arithmetic operations on two numbers. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares two integers `a` and `b`, clears the screen with `clrscr()`, and prompts the user to enter two numbers. It then calculates and prints the sum, difference, product, modulus, and division of the two numbers. The bottom window shows the program's execution output for the input values 5 and 2. The output displays the calculated results for each operation. A message at the bottom of the output window indicates that floating point formats are not linked, leading to an abnormal program termination.

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 17 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter two no's ");scanf("%d%d",&a,&b);
printf("Sum=%d\n",a+b);
printf("Sub=%d\n",a-b);
printf("Pro=%d\n",a*b);
printf("Mod=%d\n",a%b);
printf("Div=%.2f\n",a/b);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

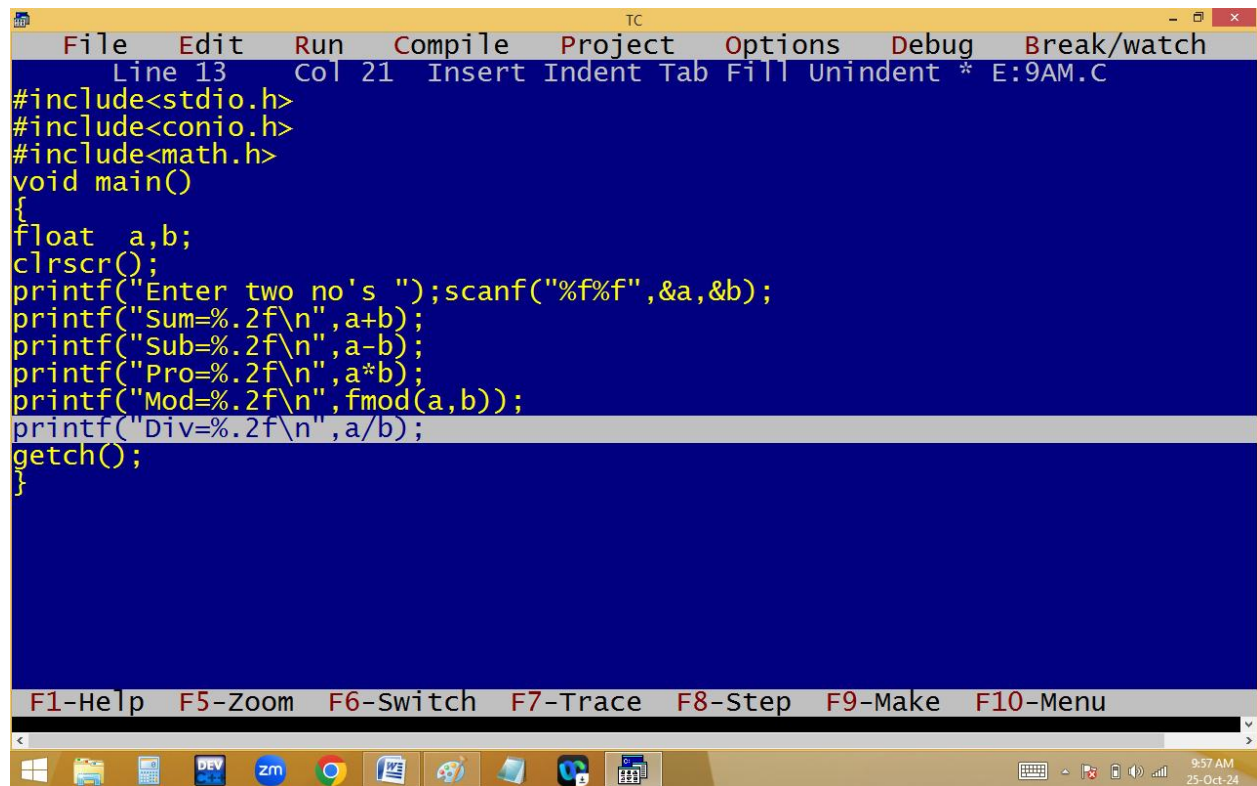
Enter two no's 5 2
Sum=7
Sub=3
Pro=10
Mod=1
printf : floating point formats not linked
Abnormal program termination

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays the source code of a C program. The code includes headers for `stdio.h` and `conio.h`, and defines a `main` function. Inside `main`, it declares two integers `a` and `b`, clears the screen with `clrscr()`, and prompts the user to enter two numbers. It then calculates and prints the sum, difference, product, modulus, and division of the two numbers. The bottom window shows the program's execution output for the input values 5 and 2.

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 28 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter two no's ");scanf("%d%d",&a,&b);
printf("Sum=%d\n",a+b);
printf("Sub=%d\n",a-b);
printf("Pro=%d\n",a*b);
printf("Mod=%d\n",a%b);
printf("Div=%.2f\n",(float)a/b);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter two no's 5 2
Sum=7
Sub=3
Pro=10
Mod=1
Div=2.50



The image shows a screenshot of the Turbo C++ (TC) IDE. The window title is "TC". The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates "Line 13 Col 21 Insert Indent Tab Fill Unindent * E:9AM.C". The main text area contains the following C code:

```
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
float a,b;
clrscr();
printf("Enter two no's ");scanf("%f%f",&a,&b);
printf("Sum=%.2f\n",a+b);
printf("Sub=%.2f\n",a-b);
printf("Pro=%.2f\n",a*b);
printf("Mod=%.2f\n",fmod(a,b));
printf("Div=%.2f\n",a/b);
getch();
}
```

Below the code, there is a function key bar with the following shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu. At the bottom, the Windows taskbar is visible, showing icons for Windows, File Explorer, DEV, zm, Chrome, Word, and other applications. The system clock in the bottom right corner shows "9:57 AM 25-Oct-24".

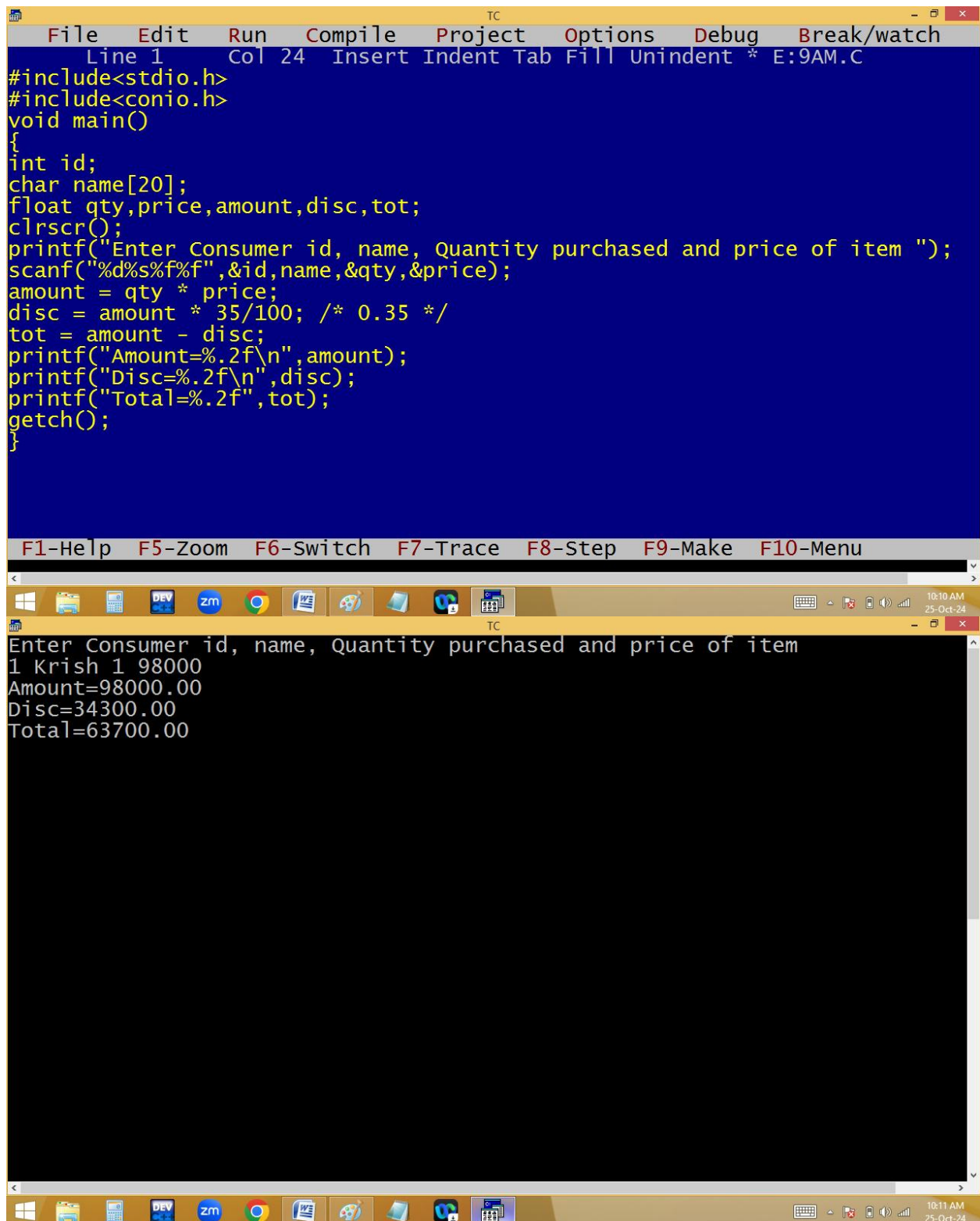
The image displays two screenshots of a Turbo C++ (TC) IDE window. The top screenshot shows the program's output for the input '5 2', and the bottom screenshot shows the output for the input '5.5 3.3'. Both outputs include the sum, subtraction, multiplication, modulus, and division of the two numbers.

```
Enter two no's 5 2
Sum=7.00
Sub=3.00
Pro=10.00
Mod=1.00
Div=2.50
```



```
Enter two no's 5.5 3.3
Sum=8.80
Sub=2.20
Pro=18.15
Mod=2.20
Div=1.67
```

Read a customer id, name, Quantity purchased and rate of item. Find the amount, 35% discount and total.

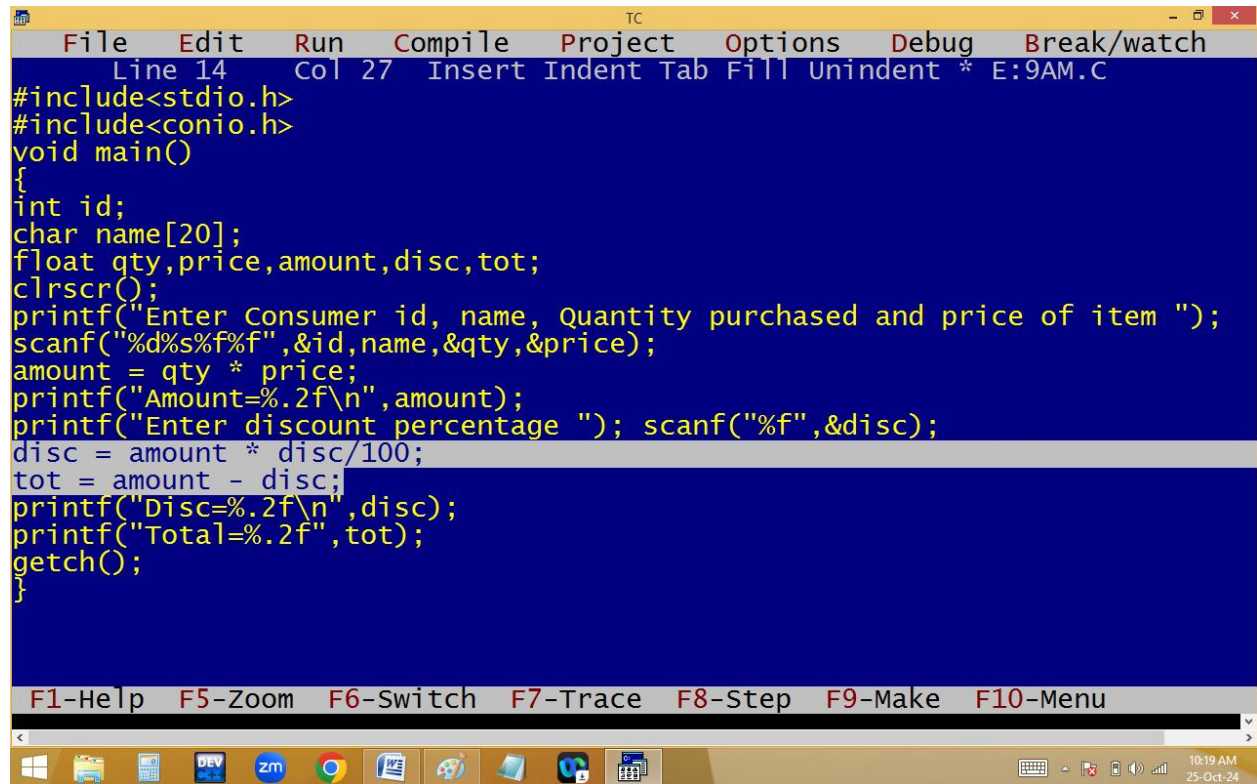


```
File Edit Run Compile Project Options Debug Break/watch
Line 1 Col 24 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int id;
char name[20];
float qty,price,amount,disc,tot;
clrscr();
printf("Enter Consumer id, name, Quantity purchased and price of item ");
scanf("%d%s%f%f",&id,name,&qty,&price);
amount = qty * price;
disc = amount * 35/100; /* 0.35 */
tot = amount - disc;
printf("Amount=%.2f\n",amount);
printf("Disc=%.2f\n",disc);
printf("Total=%.2f",tot);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu

Enter Consumer id, name, Quantity purchased and price of item
1 Krish 1 98000
Amount=98000.00
Disc=34300.00
Total=63700.00

Dynamic discount [runtime]:



The image shows a screenshot of a Turbo C++ (TC) IDE window. The title bar reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Break/watch". The status bar at the top indicates "Line 14", "Col 27", and "Insert Indent Tab Fill Unindent * E:9AM.C". The main editing area has a dark blue background with yellow text. It contains a C program that calculates a dynamic discount. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int id;
    char name[20];
    float qty,price,amount,disc,tot;
    clrscr();
    printf("Enter Consumer id, name, Quantity purchased and price of item ");
    scanf("%d%s%f%f",&id,name,&qty,&price);
    amount = qty * price;
    printf("Amount=%.2f\n",amount);
    printf("Enter discount percentage "); scanf("%f",&disc);
    disc = amount * disc/100;
    tot = amount - disc;
    printf("Disc=%.2f\n",disc);
    printf("Total=%.2f",tot);
    getch();
}
```

Below the code, a status bar shows function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Menu". At the bottom of the screen is a Windows taskbar with various application icons and a system clock showing "10:19 AM" and "25-Oct-24".

```
TC
Enter Consumer id, name, Quantity purchased and price of item
1 kumari 1 1
Amount=1.00
Enter discount percentage 0
Disc=0.00
Total=1.00
```

```
TC
Enter Consumer id, name, Quantity purchased and price of item
2 Krish 1 98000
Amount=98000.00
Enter discount percentage 80
Disc=78400.00
Total=19600.00
```

```
TC
Enter Consumer id, name, Quantity purchased and price of item
3 wife 1 10000
Amount=10000.00
Enter discount percentage 100
Disc=10000.00
Total=0.00
```

```
TC
Enter Consumer id, name, Quantity purchased and price of item
5 gf 1 10000
Amount=10000.00
Enter discount percentage 200
Disc=20000.00
Total=-10000.00_
```

Variables:

Variable is a container is used to store the values in our programs.

Variable is a named memory [bytes] where we can store and manipulate [modify] the values in our programs.

All the variables are stored in primary memory i.e. RAM Only. Due to this the variables are automatically deleted after the function / program execution. i.e. all the variables are temporary.

in c compiler we should have to declare the variables in first line of any function. In c++ we can declare anywhere.

Every variable is having 2 stages.

1. Variable declaration / declared

Eg: int a;

2. Variable initialization / defined

Eg: a=100;

Syntax:

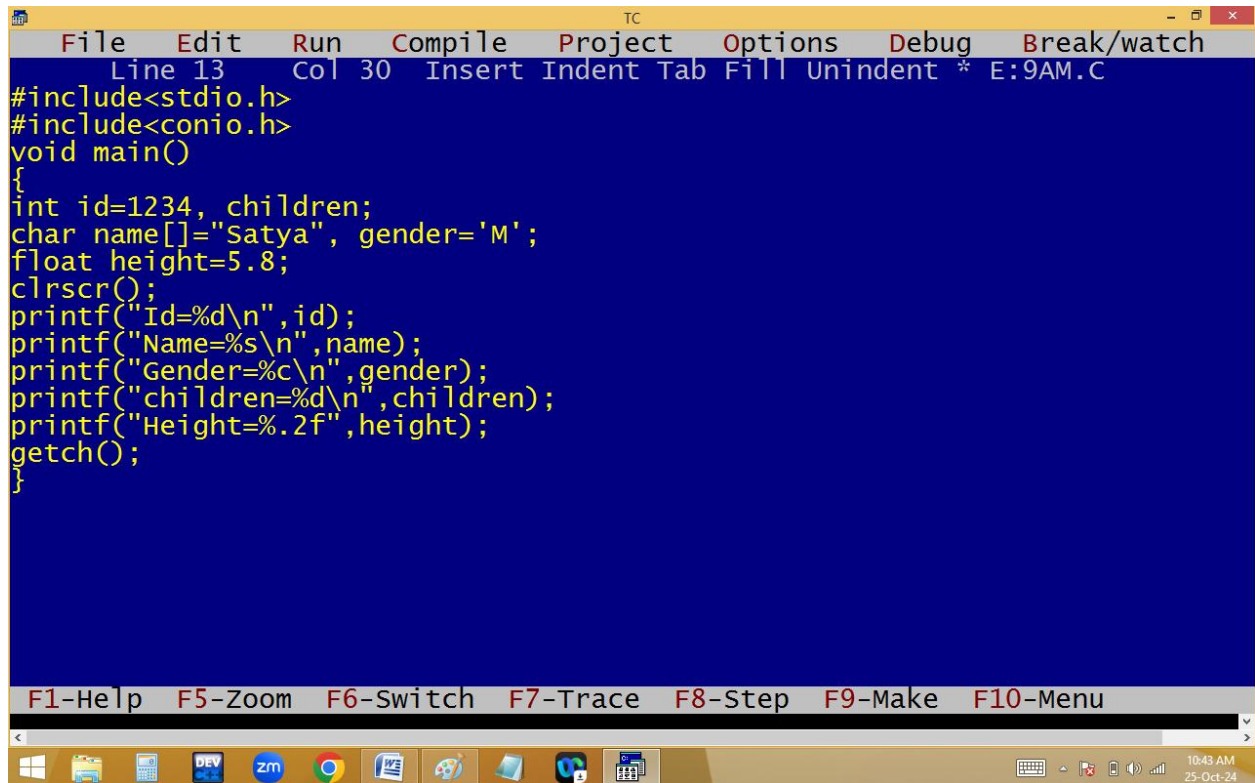
Datatype variable[=value], var[=value],.....;

Eg:

```
int id=1234, children;
```

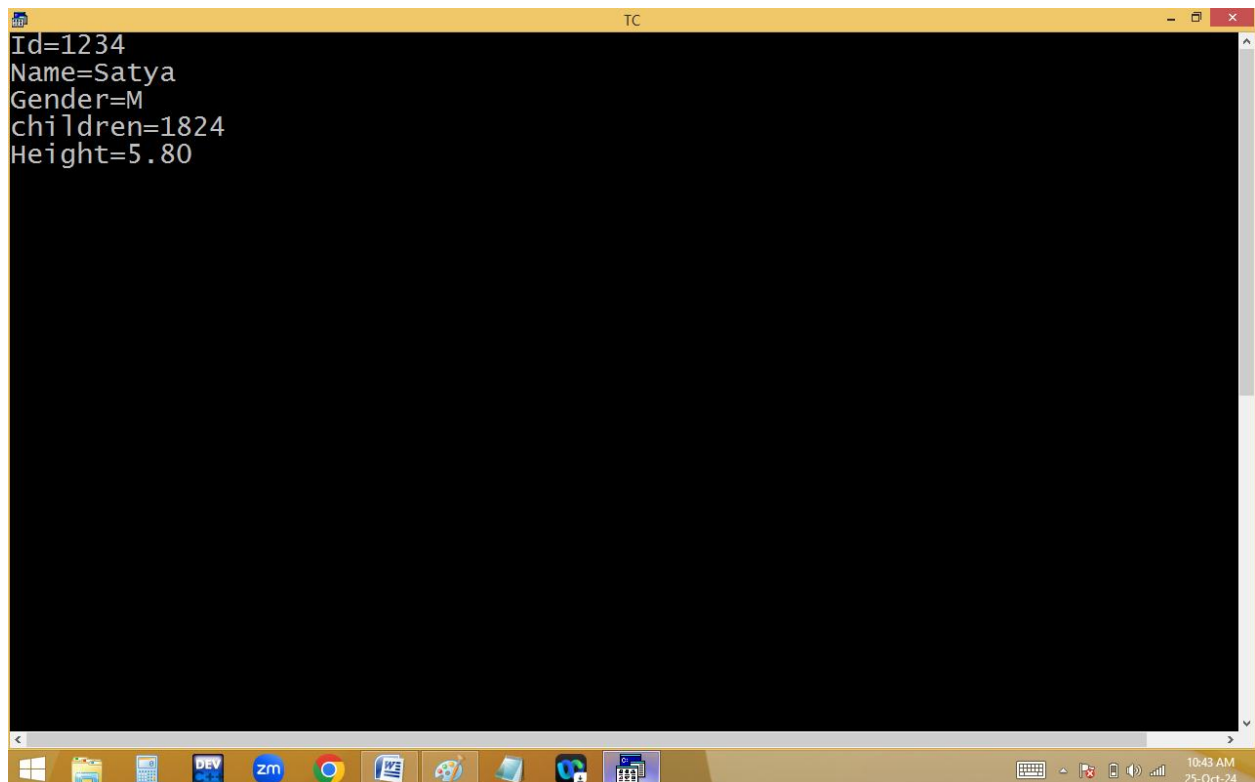
```
char name[]="Satya", gender='M';
```

float height = 5.8;



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 30 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int id=1234, children;
char name[]="Satya", gender='M';
float height=5.8;
clrscr();
printf("Id=%d\n",id);
printf("Name=%s\n",name);
printf("Gender=%c\n",gender);
printf("children=%d\n",children);
printf("Height=%.2f",height);
getch();
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu



```
TC
Id=1234
Name=Satya
Gender=M
children=1824
Height=5.80
```

Memory allocation for variables:

