

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 44 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2;
clrscr();
printf("%d,%d,%d,%d,%d\n",++a,++,a--,--a,++a);
printf("%d,%d,%d,%d,%d\n",++a,a*10,a=10,a++,++a);
getch();
}
/* In printf execution order right to left and printing left to right */

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM
TC
3,1,2,2,3
11,100,10,4,4
TC
9:32 AM
19-Oct-24
9:33 AM
19-Oct-24
```

a=2

<u>3</u>	2	1	2	3	a value
<u>++a</u>	<u>a++</u>	<u>a--</u>	<u>--a</u>	<u>++a</u>	output
3	1	2	2	3	

11	10	10	5	4	a value
<u>++a</u>	<u>a*10</u>	<u>a=10</u>	<u>a++</u>	<u>++a</u>	output
11	100	10	4	4	

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 16 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
clrscr();
printf("%d\n",++a,a=20);
printf("%d, %d, %d\n", a++, ++a, a=printf("Hi\n"));
printf("%d",a);_
getch();
}
```

Below the code editor, a command prompt window shows the output of the program:

```
21
Hi
4, 4, 3
5_
```

The Windows taskbar at the bottom shows the time as 9:40 AM on 19-Oct-24. The taskbar includes icons for Windows, File Explorer, DEV, zm, Google, Word, Paint, and the TC application.

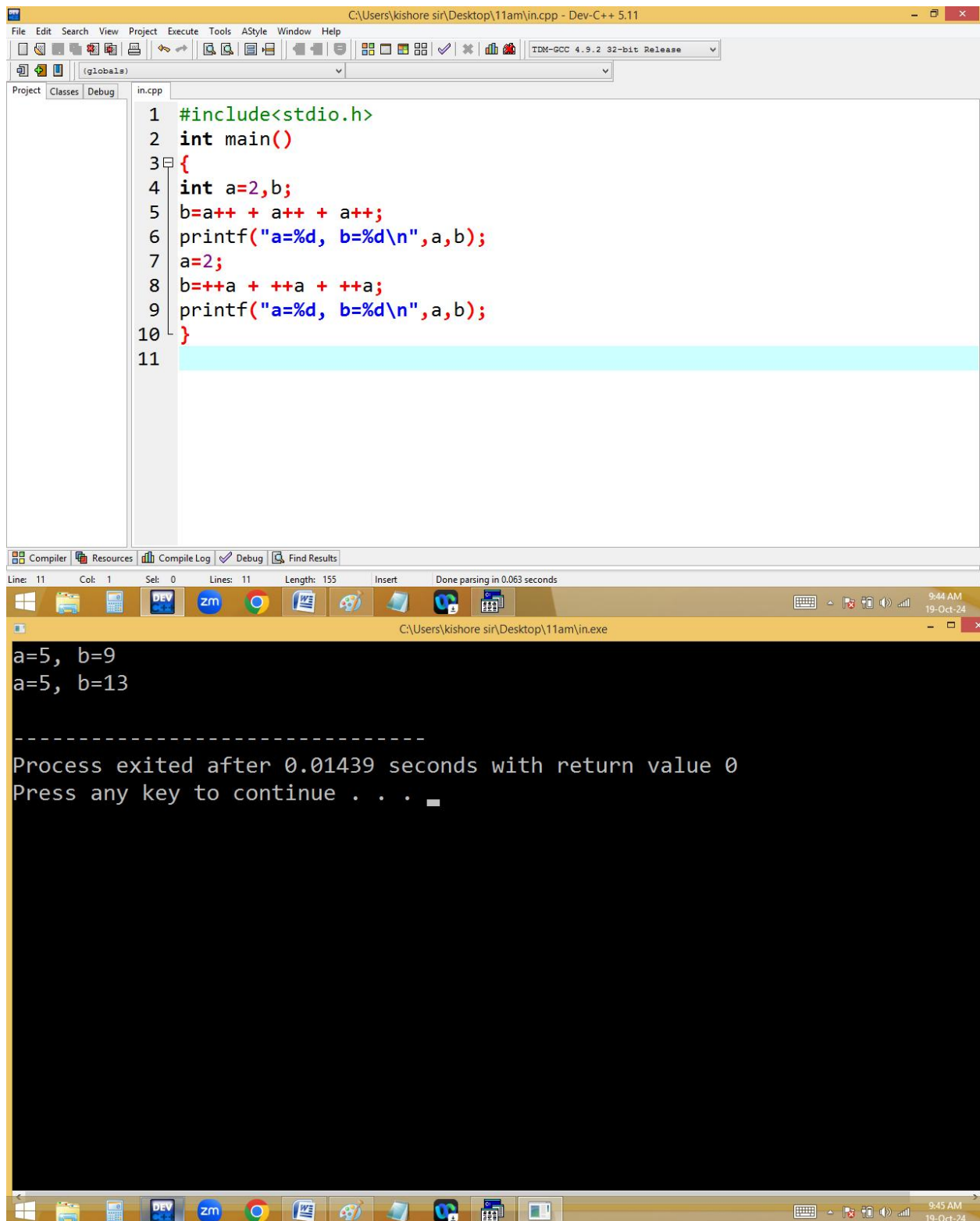
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 5 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=2,b;
clrscr();
b=a++ + a++ + a++;
printf("a=%d, b=%d\n",a,b);
a=2;
b=++a + ++a + ++a;
printf("a=%d, b=%d\n",a,b);
getch();
}
```

The bottom window shows the output of the program:

```
a=5, b=6
a=5, b=15
```

The IDE interface includes a menu bar at the top with options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. A status bar at the bottom of the editor window shows function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The Windows taskbar at the bottom of the screen shows the time as 9:43 AM on 19-Oct-24.



$$a = \cancel{2} \cancel{3} \cancel{4} 5 \checkmark$$

$\nearrow 3 \quad \nearrow 4 \quad \nearrow 5$

$$b = \underline{a}++ + \underline{a}++ + \underline{a}++$$

$\nearrow 2 + 3 + 4$

9 \checkmark

$$a = \cancel{2} \cancel{3} \cancel{4} 5 \checkmark$$

$$b = \underline{++a} + \underline{++a} + ++a;$$

$\nearrow 4 + 4$

8 + 5

13 \checkmark

Compound assignment / short hand operators:

Here we are using assignment operator with the combination of other operators as follows.

`+=, -=, *=, %/, <<=, >>=, ~=,`

Eg:

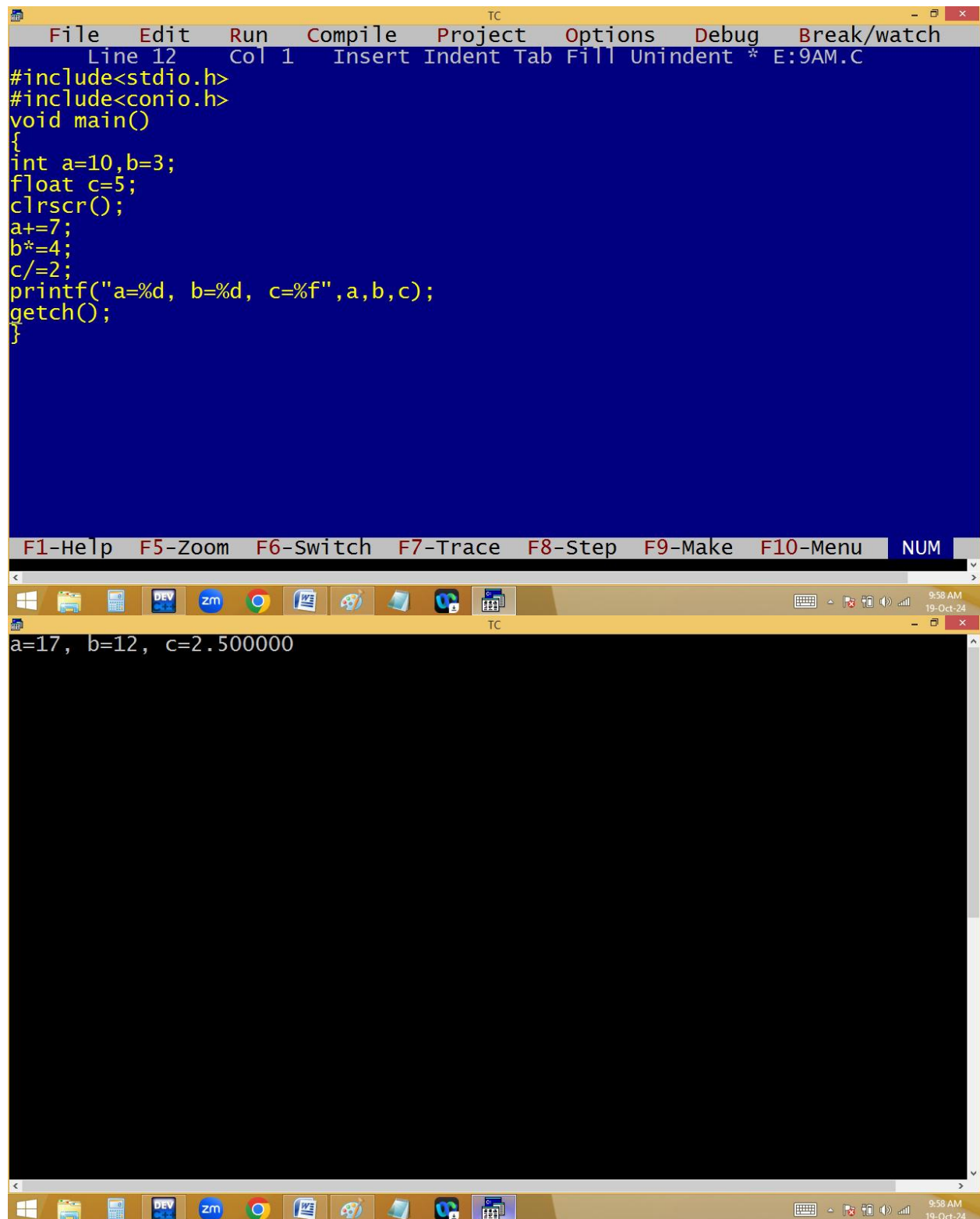
`int a=10, b=3;`

`float c=5;`

`a+=7; i.e. $a=a+7 \rightarrow a=10+7=17$`

`b*=4; i.e. $b=b*4 \rightarrow b=3*4=12$`

`c/=2; i.e. $c=c/2 \rightarrow c=5/2=2.500000$`



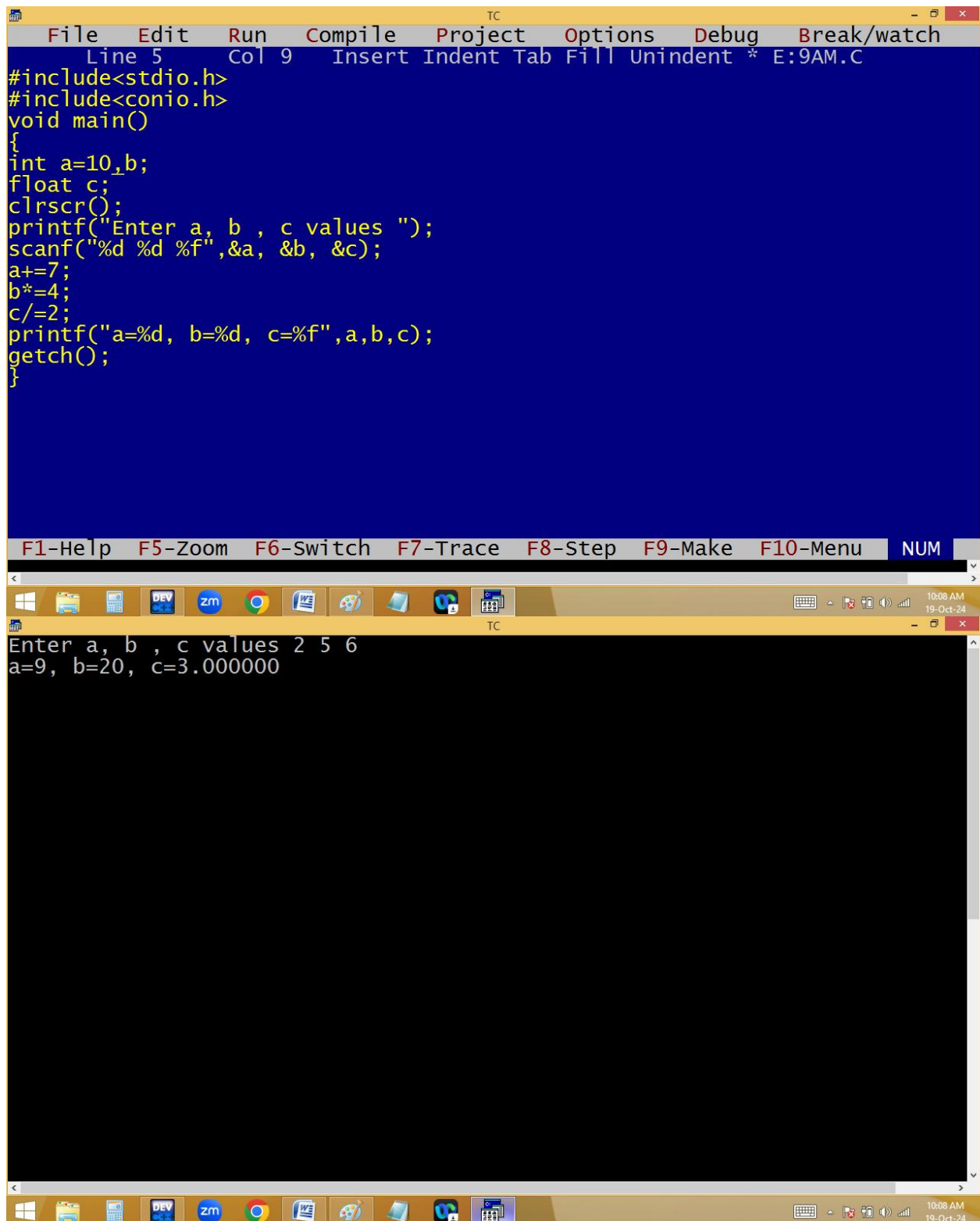
The image shows a screenshot of the Turbo C++ (TC) IDE. The main window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10,b=3;
float c=5;
clrscr();
a+=7;
b*=4;
c/=2;
printf("a=%d, b=%d, c=%f",a,b,c);
getch();
}
```

Below the code editor, a status bar shows function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, F10-Menu, and NUM. The Windows taskbar is visible at the bottom with icons for Windows, File Explorer, DEV, zm, Chrome, Word, Paint, and TC. The TC window title bar shows "TC" and standard window controls. The output window at the bottom displays the result of the program execution:

```
a=17, b=12, c=2.500000
```

The system clock in the bottom right corner indicates 9:58 AM on 19-Oct-24.



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 9 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10,b;
float c;
clrscr();
printf("Enter a, b , c values ");
scanf("%d %d %f",&a, &b, &c);
a+=7;
b*=4;
c/=2;
printf("a=%d, b=%d, c=%f",a,b,c);
getch();
}
```

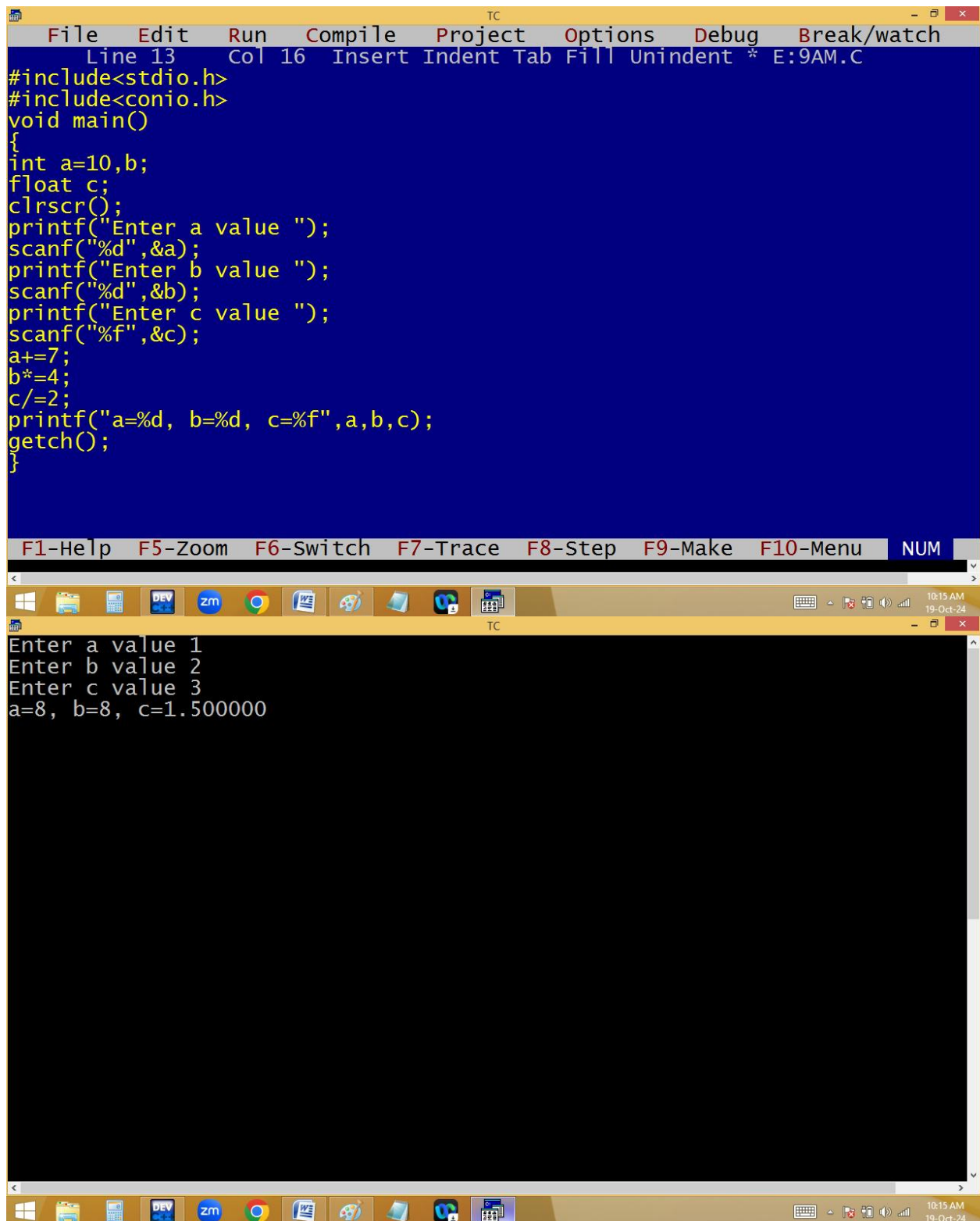
Below the code editor, a command line window shows the program's execution. It prompts the user to enter values for a, b, and c. The user has entered 2, 5, and 6. The program then outputs the calculated values: a=9, b=20, and c=3.000000.

```
Enter a, b , c values 2 5 6
a=9, b=20, c=3.000000
```

```
TC
Enter a, b , c values

8
25
10.5
a=15, b=100, c=5.250000
```

```
TC
Enter a, b , c values 4 7 9
a=11, b=28, c=4.500000
```



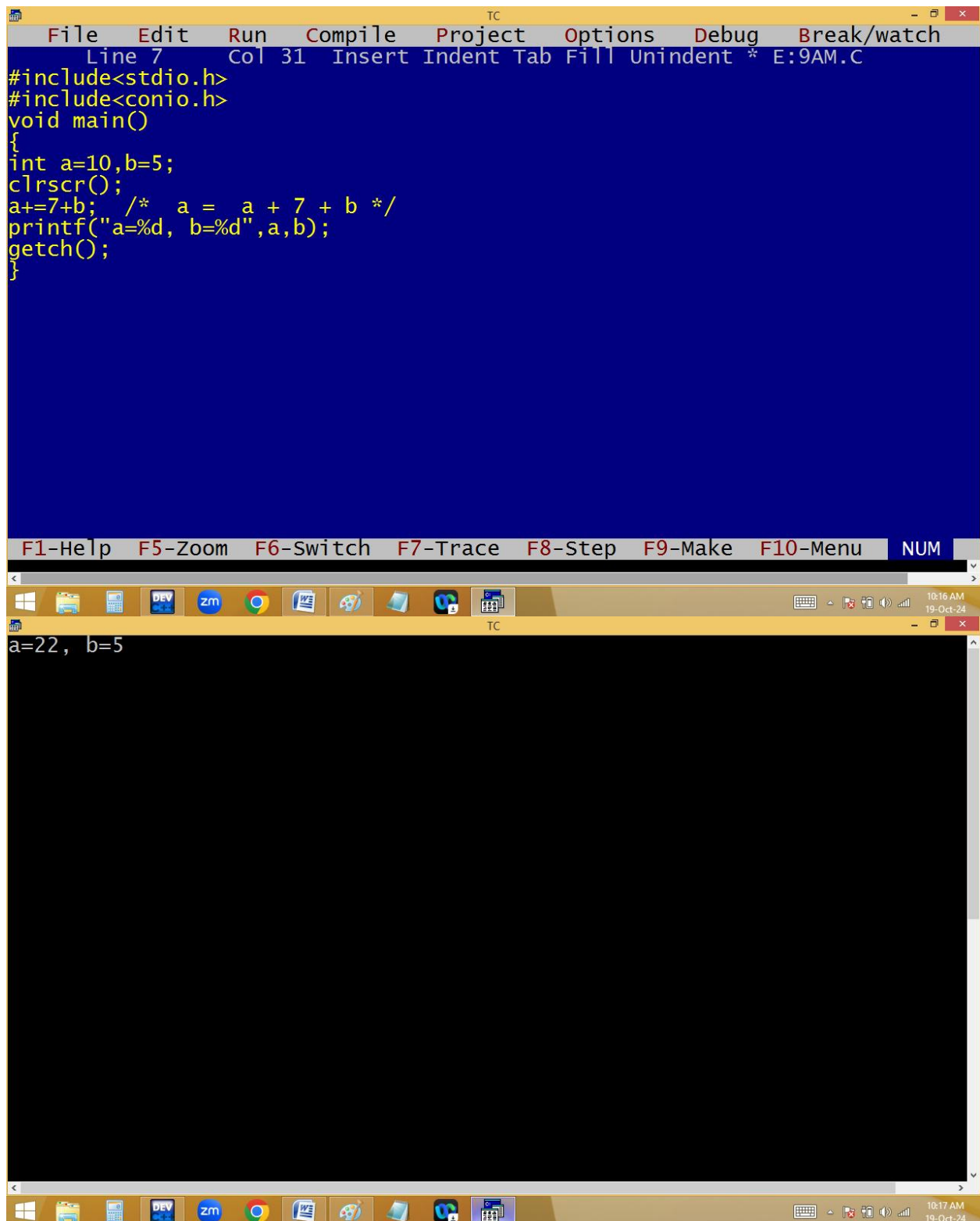
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window displays a C program with the following code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 16 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10,b;
float c;
clrscr();
printf("Enter a value ");
scanf("%d",&a);
printf("Enter b value ");
scanf("%d",&b);
printf("Enter c value ");
scanf("%f",&c);
a+=7;
b*=4;
c/=2;
printf("a=%d, b=%d, c=%f",a,b,c);
getch();
}
```

Below the code editor, the execution output is shown in a black window:

```
Enter a value 1
Enter b value 2
Enter c value 3
a=8, b=8, c=1.500000
```

The Windows taskbar at the bottom shows the time as 10:15 AM on 19-Oct-24. The TC window title bar includes standard Windows window controls and the text "TC".



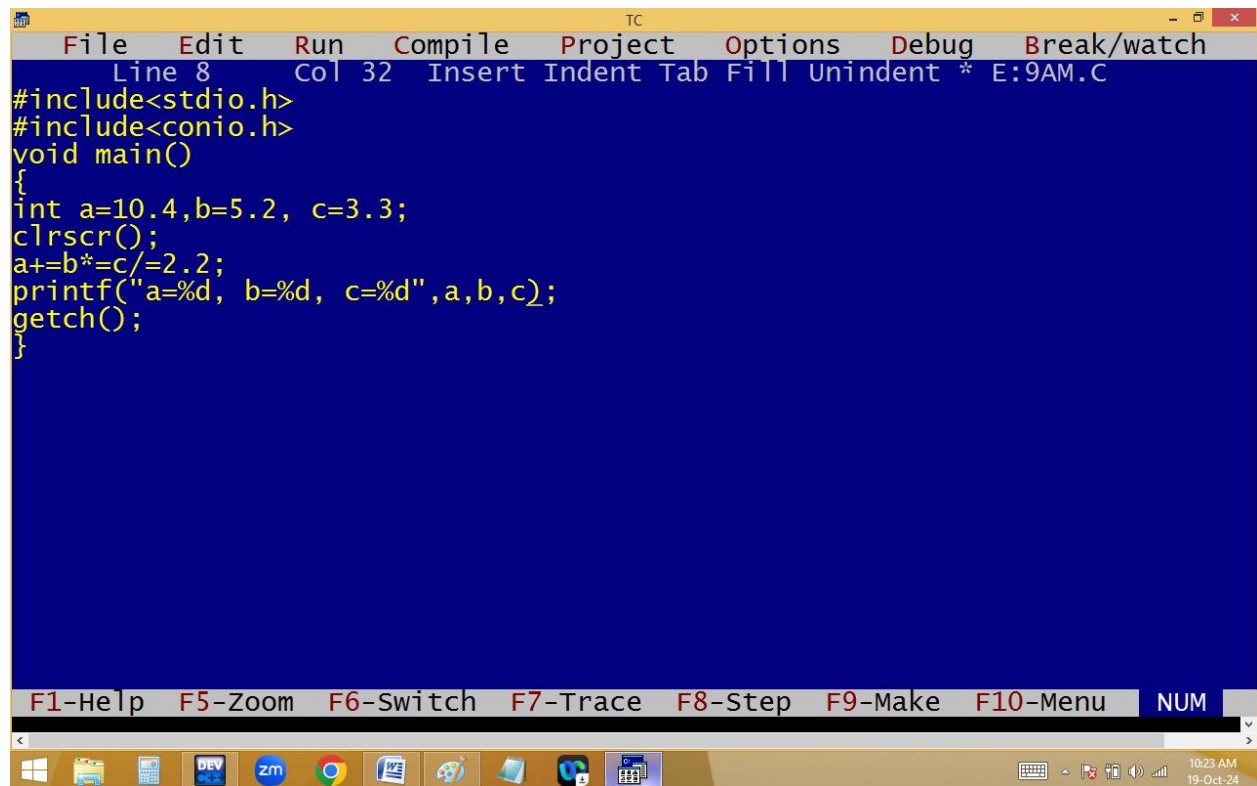
The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the source code editor, which has a blue background and displays the following C code:

```
File Edit Run Compile Project Options Debug Break/watch
Line 7 Col 31 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10,b=5;
clrscr();
a+=7+b; /* a = a + 7 + b */
printf("a=%d, b=%d",a,b);
getch();
}
```

Below the code editor is a toolbar with various icons and a status bar. The bottom window is the output console, which has a black background and displays the output of the program:

```
a=22, b=5
```

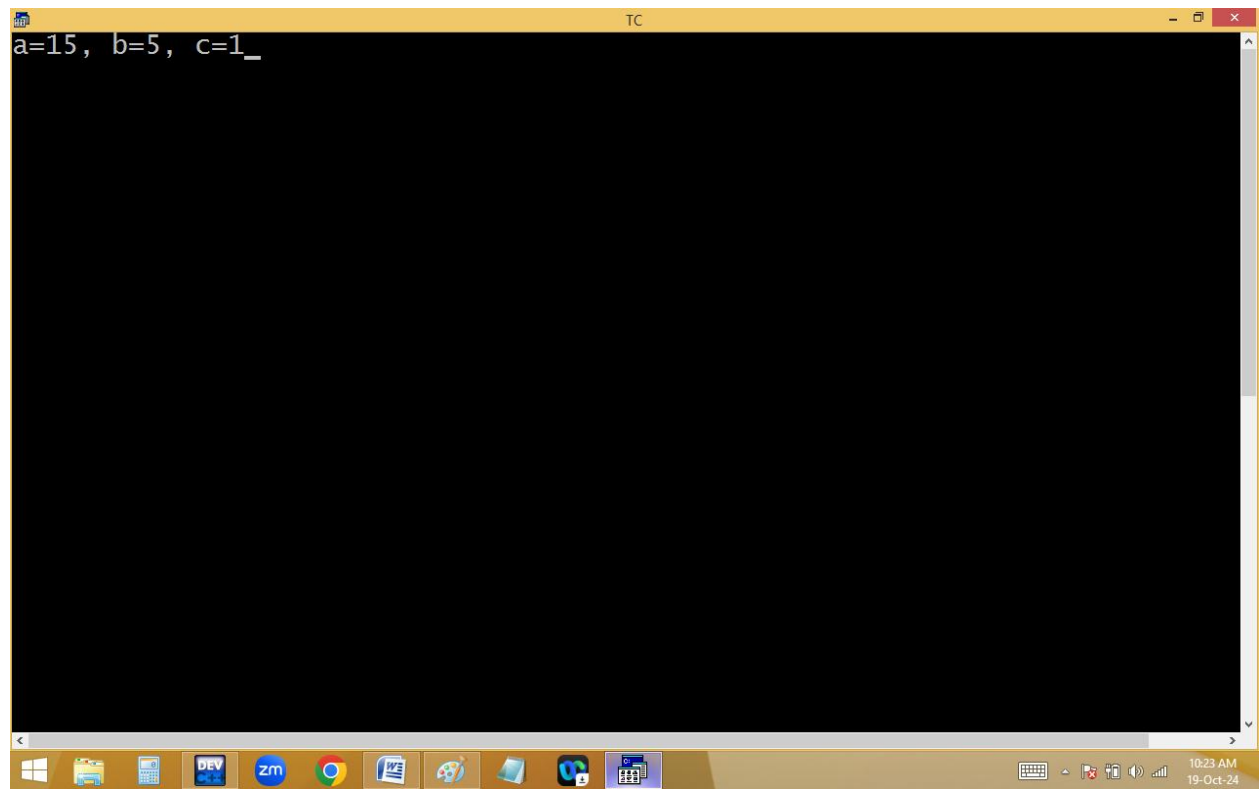
The output console also has a toolbar and a status bar. The status bar at the bottom right of the output console shows the time as 10:17 AM and the date as 19-Oct-24.



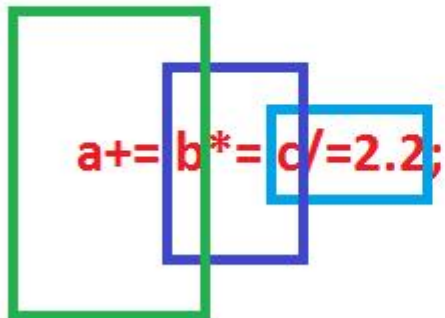
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 32 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10.4,b=5.2, c=3.3;
clrscr();
a+=b*c/=2.2;
printf("a=%d, b=%d, c=%d",a,b,c);
getch();
}
```

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

10:23 AM
19-Oct-24



int a=10 b=5 c=3



$c/=2.2 \implies c = c / 2.2 \rightarrow 3 / 2.2 = 1$ ✓

$b*=c \implies b = b * c \implies 5 * 1 = 5$ ✓

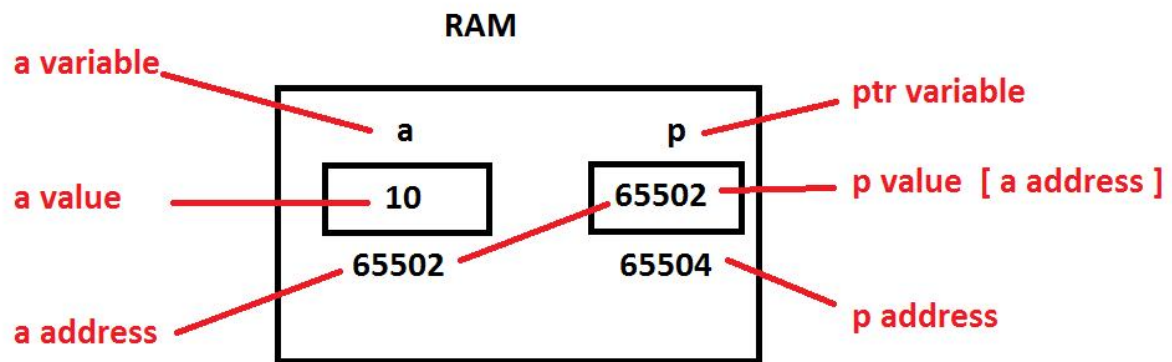
$a+=b \implies a=a+b \implies 10 + 5 = 15$ ✓

Address operators:

1. & - Address of the variable
2. * - pointer – Address of another variable

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 26 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10; /* var */
int *p; /* pointer var */
p = &a;
clrscr();
printf("a value %d\n",a);
printf("a address %u\n",&a);
printf("p value %u",p);
getch();
}

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu NUM
TC
a value 10
a address 65502
p value 65502
10:28 AM
19-Oct-24
```

() and , separators:

```
TC
File Edit Run Compile Project Options Debug Break/watch
Error: Declaration syntax error in function main
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10,20; /* var declaration */
clrscr();
printf("a value   %d\n",a);
getch();
}
```

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

10:31 AM
19-Oct-24


The image displays two instances of the Turbo C++ (TC) IDE, stacked vertically. Both windows have a blue background and a yellow title bar with the text 'TC'. The top window's menu bar includes 'File', 'Edit', 'Run', 'Compile', 'Project', 'Options', 'Debug', and 'Break/watch'. The status bar at the bottom of the top window shows 'F1-Help', 'F5-Zoom', 'F6-Switch', 'F7-Trace', 'F8-Step', 'F9-Make', 'F10-Menu', and 'NUM'. The code in the top window is as follows:

```
Line 5 Col 14 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=(10,20); /* var declaration */
clrscr();
printf("a value  %d\n",a);
getch();
}
```

The bottom window also has the same menu bar and status bar. Its status bar shows 'Line 12 Col 38 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the bottom window is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a; /* var declaration */
clrscr();
a=10,20,30; /* initialization */
printf("a value  %d\n",a);
getch();
}
/* a value 10
= have more priority than , operator _
*/
```

int a = (10, 20);



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 16 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a; /* var declaration */
clrscr();
a=(10,20,30),40; /* initialization */
printf("a value  %d\n",a);
getch();
}
/* a value 30  */
```

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

10:38 AM 19-Oct-24

a = (10, 20, 30), 40;
→
20, 30
→
a = 30, 40
↖

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a; /* var declaration */
clrscr();
a=10,20,(30),40; /* initialization */
printf("a value  %d\n",a);
getch();
}
/* a value 10 */
```

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

10:42 AM 19-Oct-24

a = 10, 20, (30), 40;



a = 10, 20, 30, 40;



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a; /* var declaration */
clrscr();
a=(10,20),(30,40); /* initialization */
printf("a value %d\n",a);
getch();
}
/* a value 20 */

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

$a = (10, 20), (30, 40);$
→ →
 $a = 20, 40$
↖

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a; /* var declaration */
clrscr();
a=((10,20),(30,40),50),60; /* initialization */
printf("a value %d\n",a);
getch();
}
/* a value 50 */

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

a = ((10,20), (30,40), 50) , 60;

