

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 8 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=10;
clrscr();
a++/2;
printf("a=%d\\n",a);
++a/2;
printf("a=%d",a);
getch();
}
/* a=11
a=12_
*/
```

**a=10**

**a++/2; priority: /, a++**

**1.  $a/2 \Rightarrow 10/2=5$  [ 5 not stored in a because of = not used ]**

**i.e. a = 10**

**2. a++  $\Rightarrow$  a=11**

**printf(a)  $\Rightarrow$  a=11**

**++a/2; priority: ++a, /**

**1. ++a  $\Rightarrow$  a=12**

**2.  $a/2 \Rightarrow 12/2=6$  [ 6 not stored in a because of = not used ]**

**i.e. a=12**

**printf(a)  $\Rightarrow$  a=12**

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 7 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=10;
clrscr();
a=a++/2;
printf("a=%d\n",a);
a=++a/2;
printf("a=%d",a);
getch();
}
/* a=6
   a=3
*/
```

**a=10**

**a=a++/2; priority: /, =, a++**

**1. a=a/2==>10/2=5**

**2. a=5**

**3. a++ ==> a=6**

**printf(a) ==> a=6**

**a=++a/2; priority: ++a, /, =**

**1. ++a==>a=7**

**2. a=a/2==>7/2=3**

**3. a=3**

**printf(a) ==> a=3**

```
#include<stdio.h>
#include<conio.h>
main()
{
int a=10;
clrscr();
printf("a=%d\n",a++/2);
printf("a=%d\n",++a/2);
printf("a=%d",a);
getch();
}
/* a=5
   a=6
   a=12
*/
```

**printf(a++/2);**

**priority: /, printf, a++**

**1.  $a/2 \implies 10/2=5$**

**2. **printf(5)** [ 5 not stored because of = not used i.e. a = 10 ]**

**3.  $a++ \implies a=11$**

**p(++a/2);**

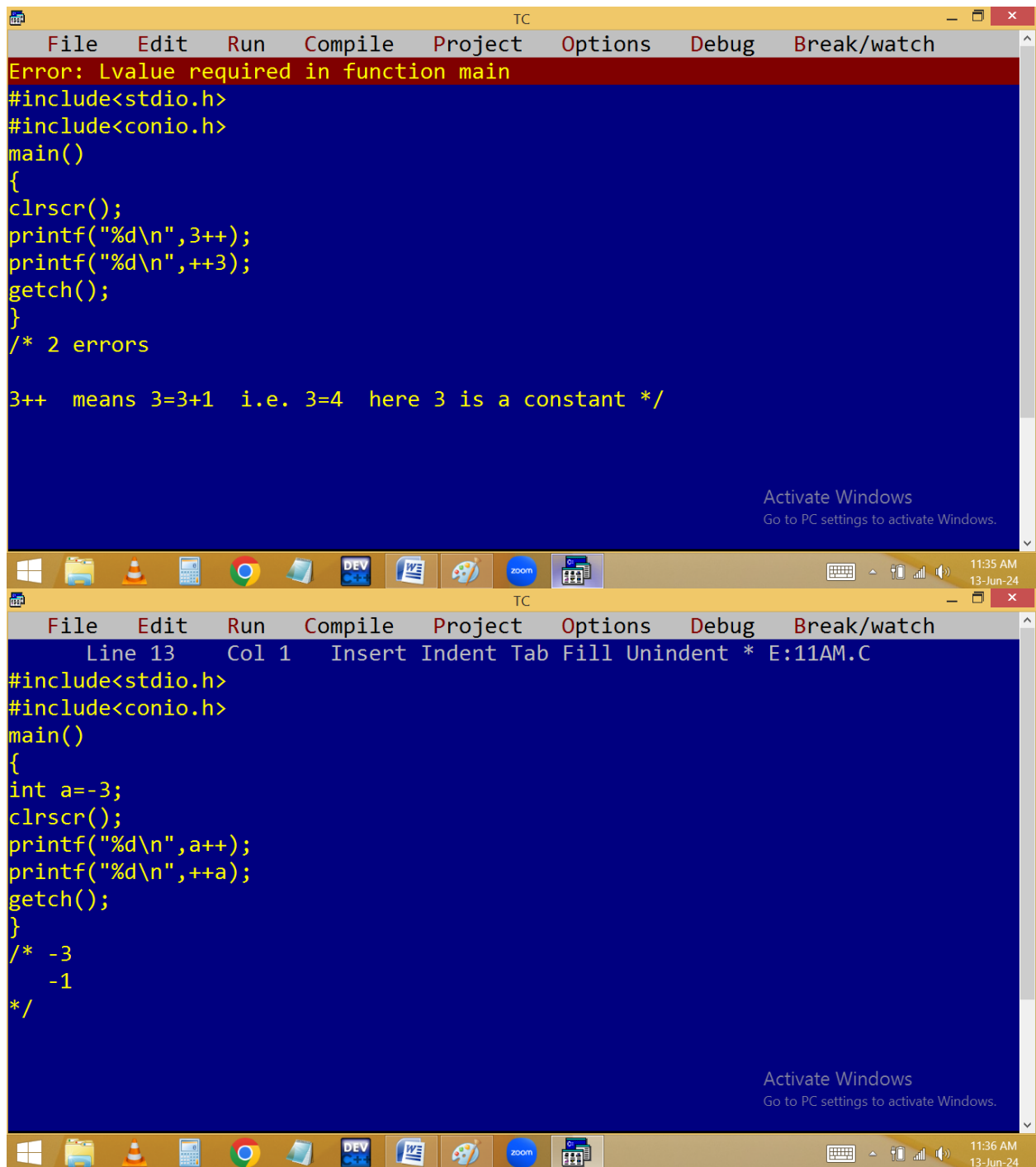
**priority: ++a, /, printf**

**1.  $++a \implies a=12$**

**2.  $a/2 \implies 12/2=6$**

**3. **printf(6);** [ 6 printed not stored i.e. a=12 ]**

**printf(a); a=12**



The image shows two instances of the Turbo C++ (TC) IDE. The top window displays a C program with a compilation error. The code is as follows:

```
File Edit Run Compile Project Options Debug Break/watch
Error: Lvalue required in function main
#include<stdio.h>
#include<conio.h>
main()
{
clrscr();
printf("%d\n",3++);
printf("%d\n",++3);
getch();
}
/* 2 errors

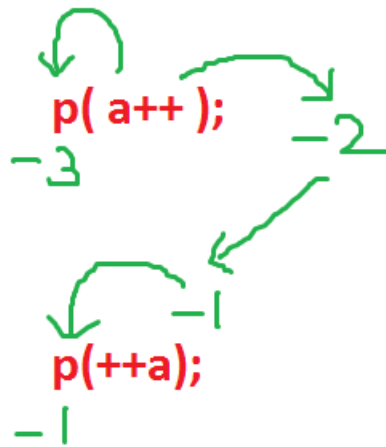
3++ means 3=3+1 i.e. 3=4 here 3 is a constant */
```

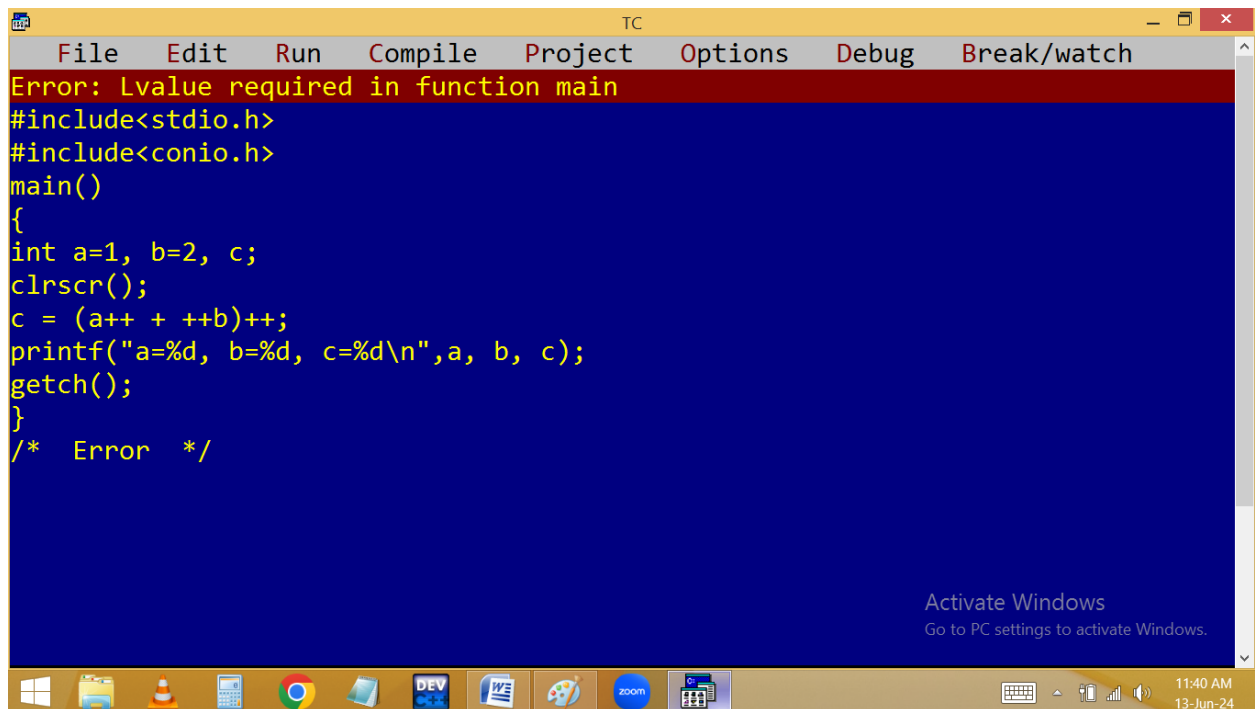
The bottom window shows the same code after modification, with the error resolved. The status bar indicates 'Line 13 Col 1 Insert Indent Tab Fill Unindent \* E:11AM.C'. The code is:

```
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 1 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=-3;
clrscr();
printf("%d\n",a++);
printf("%d\n",++a);
getch();
}
/* -3
-1
*/
```

Both windows have a taskbar at the bottom with various application icons and a system tray showing the time as 11:35 AM and 11:36 AM on 13-Jun-24. An 'Activate Windows' watermark is visible in the bottom right of each window.

**a = -3;**





The screenshot shows a Turbo C++ (TC) IDE window. The title bar says 'TC'. The menu bar includes 'File', 'Edit', 'Run', 'Compile', 'Project', 'Options', 'Debug', and 'Break/watch'. A red error message banner at the top reads 'Error: Lvalue required in function main'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
main()
{
int a=1, b=2, c;
clrscr();
c = (a++ + ++b)++;
printf("a=%d, b=%d, c=%d\n",a, b, c);
getch();
}
/* Error */
```

The Windows taskbar at the bottom shows various icons including the Start button, File Explorer, VLC, a calculator, Chrome, a folder, a 'DEV' icon, a 'WE' icon, a paint application, Zoom, and a calendar. The system clock in the bottom right corner shows '11:40 AM' and '13-Jun-24'. An 'Activate Windows' watermark is visible in the bottom right of the IDE window.

**a=1, b=2**

**c = (a++ + ++b)++;**

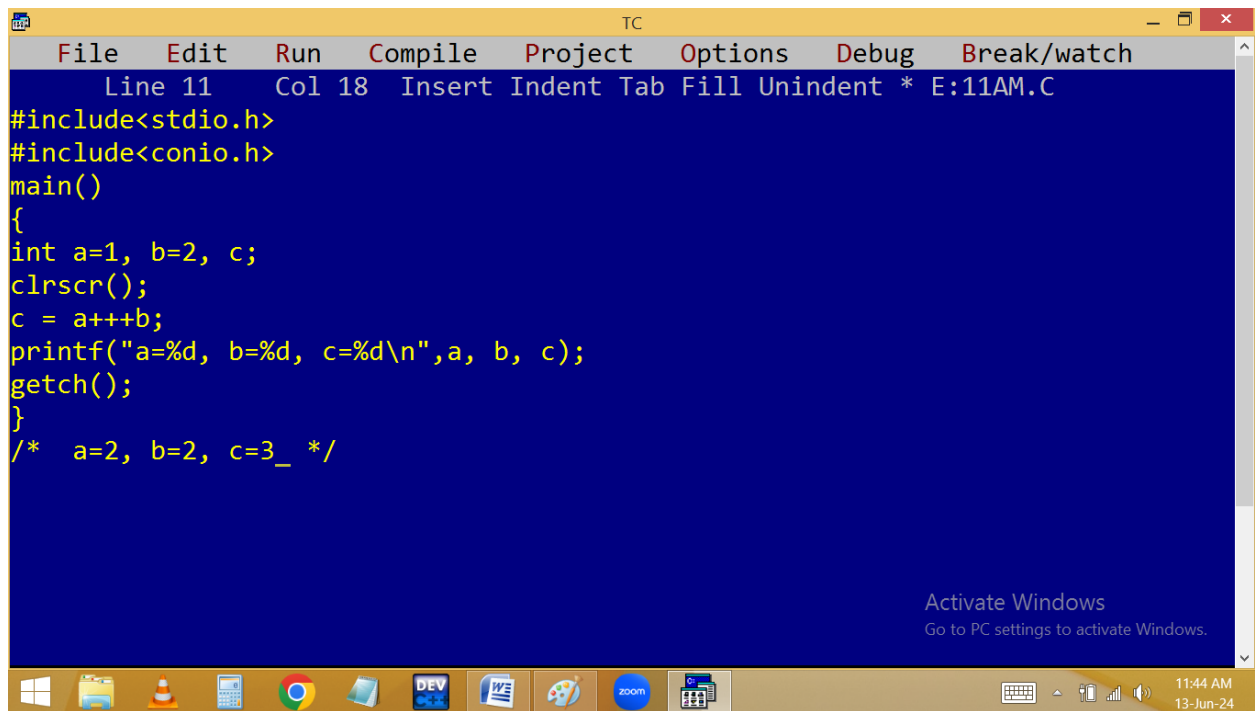
**priority: ( ), ++b, +, a++**

**1. ++b ==> b=3**

**2. ( a + b ) ==> 1 + 3 = 4**

**3. (4)++ ==> 4 is a constant ==> Error**

**Note: We can't implement ++ / -- on expressions because of every expression return a constant value.**



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 18 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=1, b=2, c;
clrscr();
c = a+++b;
printf("a=%d, b=%d, c=%d\n",a, b, c);
getch();
}
/* a=2, b=2, c=3_ */

Activate Windows
Go to PC settings to activate Windows.

11:44 AM
13-Jun-24
```

**a=1, b=2** ✓

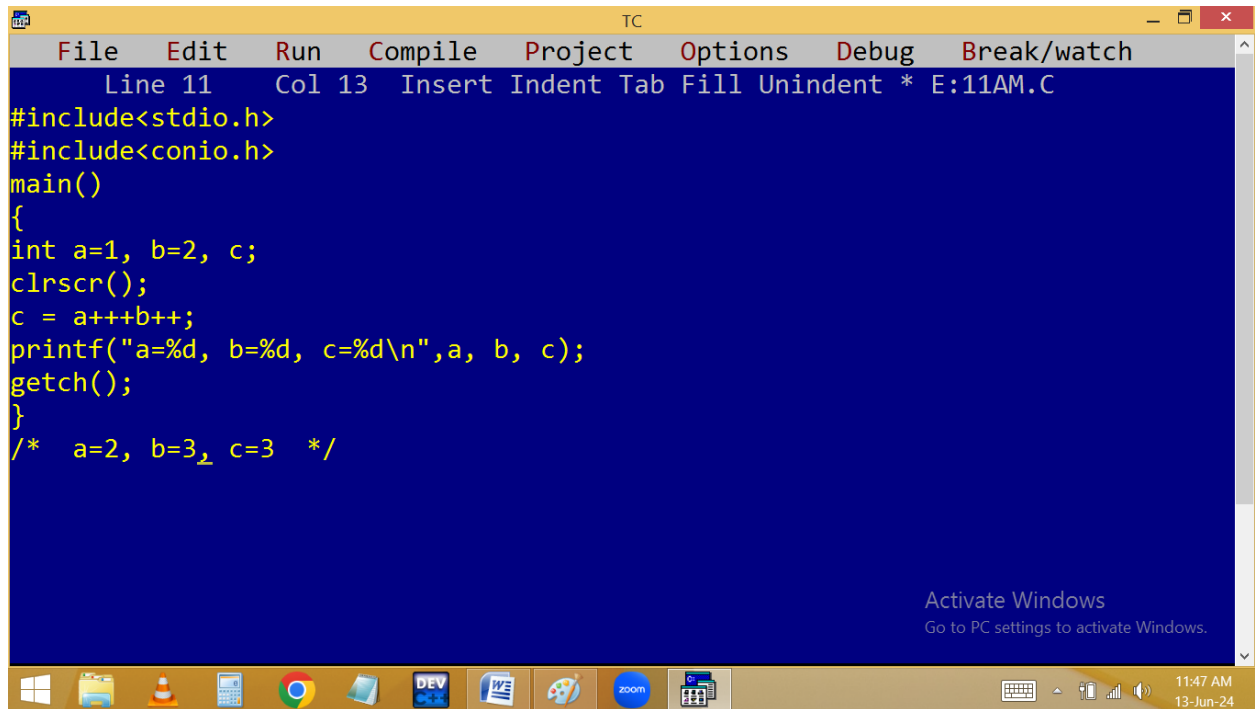
**c = a+++b;**

**priority: +, =, a++**

**1. c ==> a + b ==> 1 + 2**

**2. c = 3**

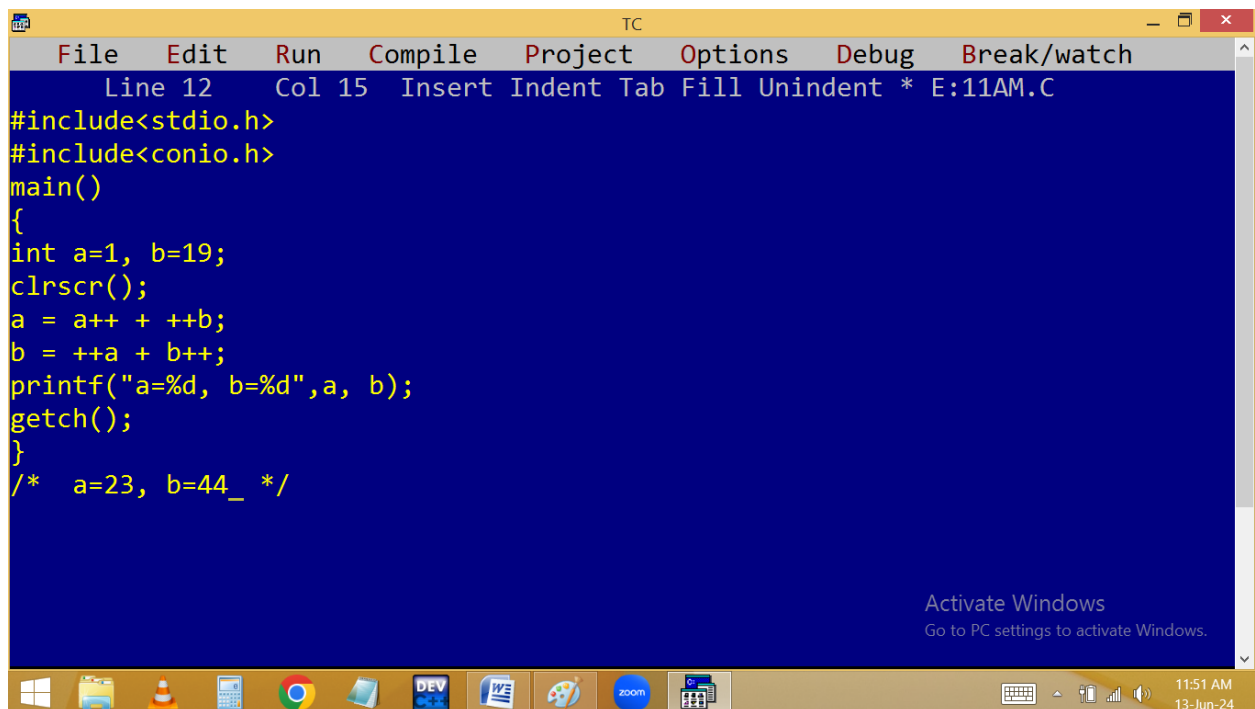
**3. a++ ==> a=2**



The screenshot shows the Turbo C++ IDE with a C program. The code contains a loop increment error: `c = a+++b++;`. The IDE status bar indicates the cursor is at Line 11, Column 13. The taskbar at the bottom shows various application icons and the system clock at 11:47 AM on 13-Jun-24.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 13 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=1, b=2, c;
clrscr();
c = a+++b++;
printf("a=%d, b=%d, c=%d\n",a, b, c);
getch();
}
/* a=2, b=3, c=3 */

Activate Windows
Go to PC settings to activate Windows.
```



The screenshot shows the Turbo C++ IDE with a C program. The code correctly uses pre-increment and post-increment operators: `a = a++ + ++b;` and `b = ++a + b++;`. The IDE status bar indicates the cursor is at Line 12, Column 15. The taskbar at the bottom shows various application icons and the system clock at 11:51 AM on 13-Jun-24.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 15 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=1, b=19;
clrscr();
a = a++ + ++b;
b = ++a + b++;
printf("a=%d, b=%d",a, b);
getch();
}
/* a=23, b=44_ */

Activate Windows
Go to PC settings to activate Windows.
```



**a=1      b=19**

**a = a++ + ++b;**

**priority: ++b, +, =, a++**

**1. ++b==> b=20**

**2. a = a + b ==> 1 + 20**

**3. a=21**

**4. a++ ==> a=22**

**a=22      b=20**

**b = ++a + b++;**

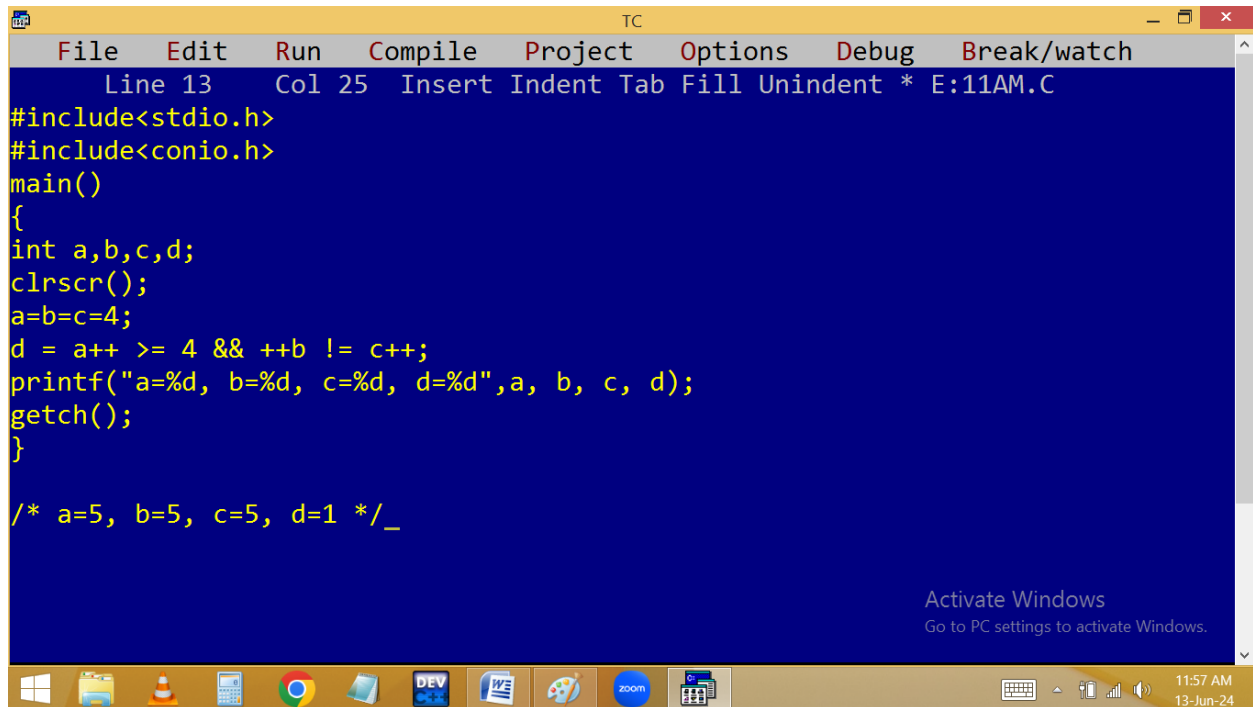
**priority: ++a, +, =, b++**

**1. ++a ==> a=23 ✓**

**2. b = a + b ==> 23 + 20**

**3. b = 43**

**4. b++ ==> b=44 ✓**



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 25 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a,b,c,d;
clrscr();
a=b=c=4;
d = a++ >= 4 && ++b != c++;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=5, b=5, c=5, d=1 */_

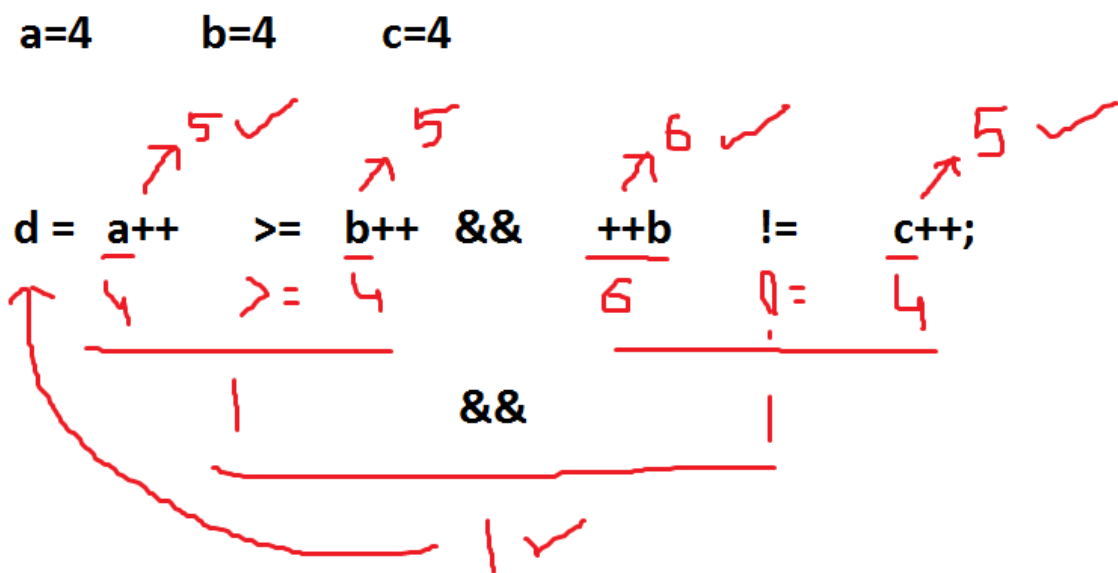
Activate Windows
Go to PC settings to activate Windows.
11:57 AM
13-Jun-24
```

$d = \underbrace{a++}_{4} \geq \underbrace{4}_{4} \&\& \underbrace{++b}_{5} \neq \underbrace{c++}_{4};$

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 12 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a,b,c,d;
clrscr();
a=b=c=4;
d = a++ >= b++ && ++b != c++;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=5, b=6, c=5, d=1 */

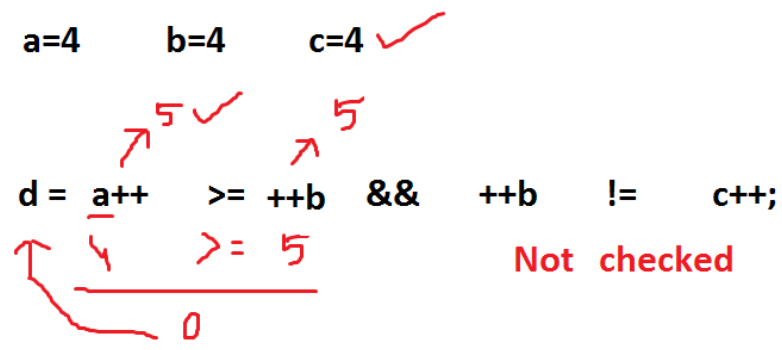
Activate Windows
Go to PC settings to activate Windows.
```



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 22 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a,b,c,d;
clrscr();
a=b=c=4;
d = a++ >= ++b && ++b != c++;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=5, b=5, c=4, d=0 */

Activate Windows
Go to PC settings to activate Windows.
```

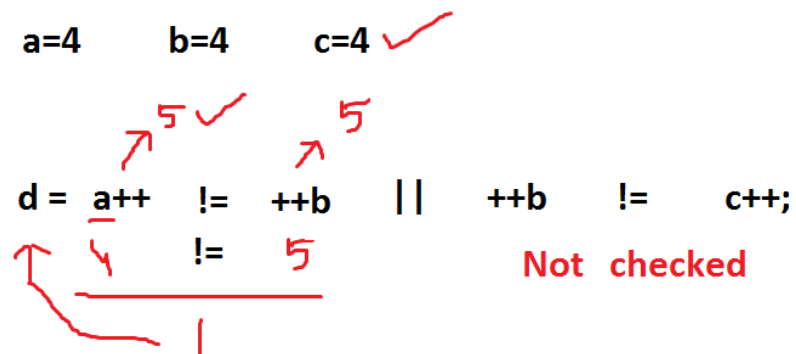


**Note:** In && operation when left exp false then right exp not checked.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 22 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a,b,c,d;
clrscr();
a=b=c=4;
d = a++ != ++b || ++b != c++;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=5, b=5, c=4, d=1 */

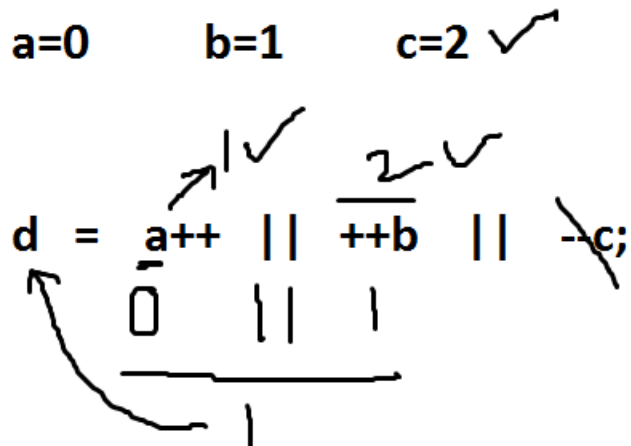
Activate Windows
Go to PC settings to activate Windows.
```



**Note:** In || operation when left exp true then right exp not checked.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 19 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=0,b=1,c=2,d;
clrscr();
d = a++ || ++b || --c;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=1, b=2, c=2, d=1 */
```



```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 17 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=0,b=1,c=2,d;
clrscr();
d = a++ && ++b || --c;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=1, b=1, c=1, d=1 */

Activate Windows
Go to PC settings to activate Windows.
```

a=0      b=1 ✓      c=2

d = a++ && ++b || --c;

Diagram illustrating the execution of the expression `d = a++ && ++b || --c;` with handwritten annotations:

- `a++`: The value of `a` is 0. An arrow points to the `++` operator, and a red checkmark is next to it. Below `a` is a box containing 0.
- `&&`: The logical AND operator. Below it are two vertical bars.
- `++b`: The value of `b` is 1. An arrow points to the `++` operator, and a red checkmark is next to it. Below `b` is a box containing 1.
- `||`: The logical OR operator. Below it are two vertical bars.
- `--c`: The value of `c` is 2. An arrow points to the `--` operator, and a red checkmark is next to it. Below `c` is a box containing 2.

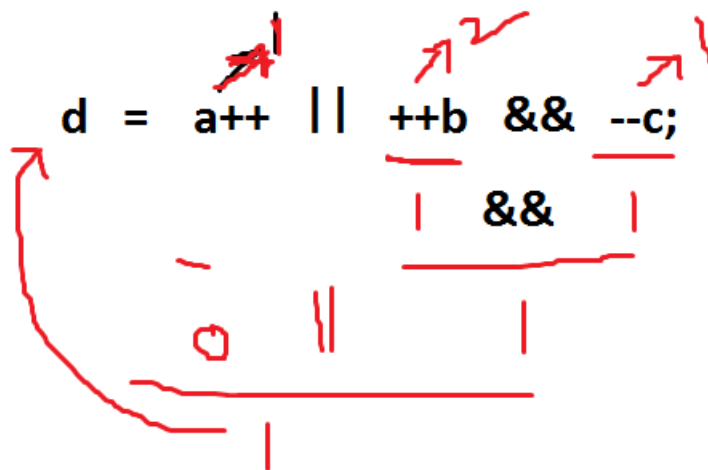
A horizontal line is drawn below the expression, with a vertical bar and a red checkmark centered underneath it.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 12 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=0,b=1,c=2,d;
clrscr();
d = a++ || ++b && --c;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=1, b=2, c=1, d=1 */

Activate Windows
Go to PC settings to activate Windows.
```

**a=0      b=1      c=2**





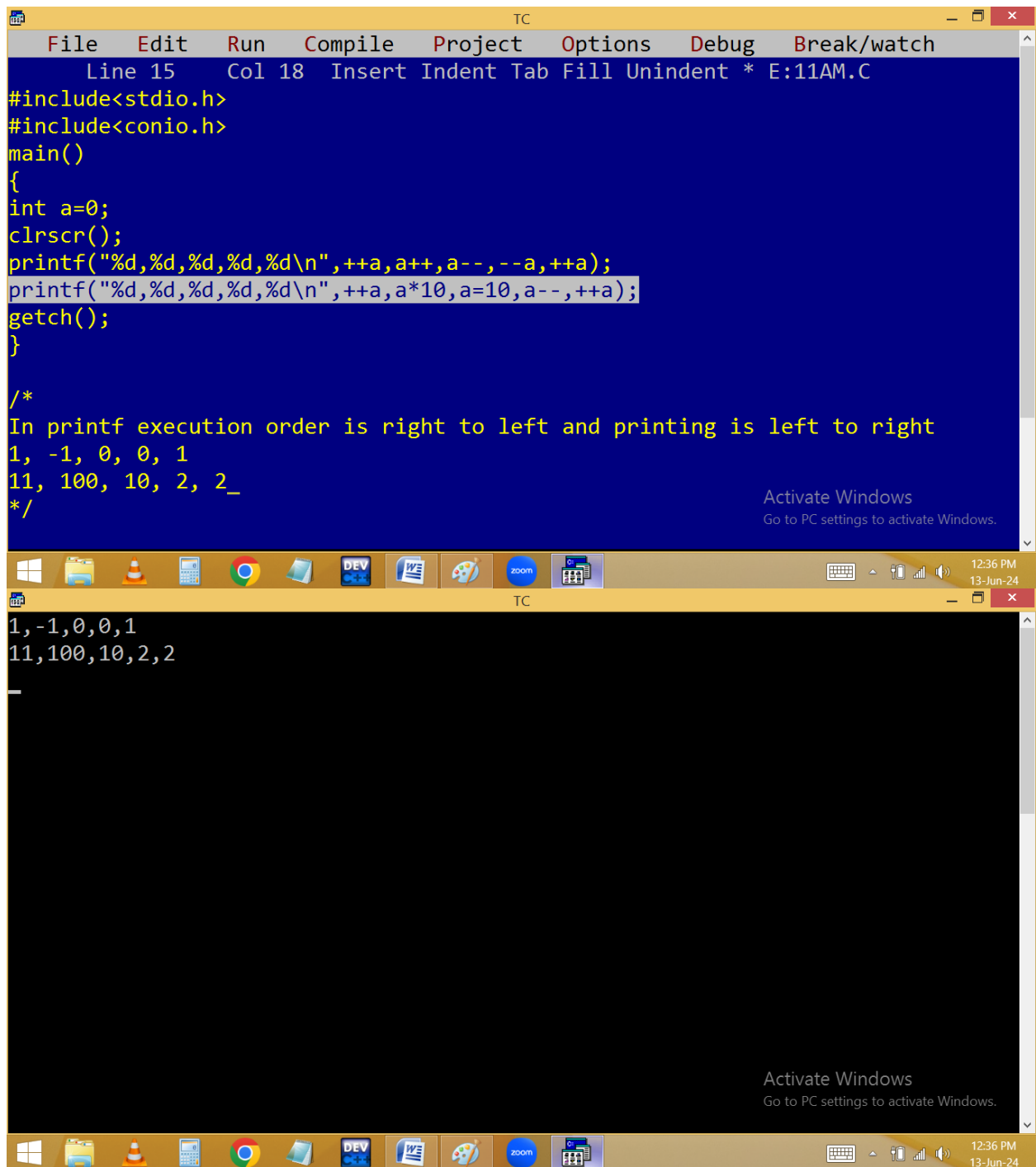
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 22 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=0,b=1,c=2,d;
clrscr();
d = a++ && ++b && --c;
printf("a=%d, b=%d, c=%d, d=%d",a, b, c, d);
getch();
}

/* a=1, b=1, c=2, d=0_*/
```

a=0      b=1 ✓      c=2 ✓

d = a++ && ++b && --c;

0



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 15 Col 18 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=0;
clrscr();
printf("%d,%d,%d,%d,%d\n",++a,a++,a--,--a,++a);
printf("%d,%d,%d,%d,%d\n",++a,a*10,a=10,a--,++a);
getch();
}

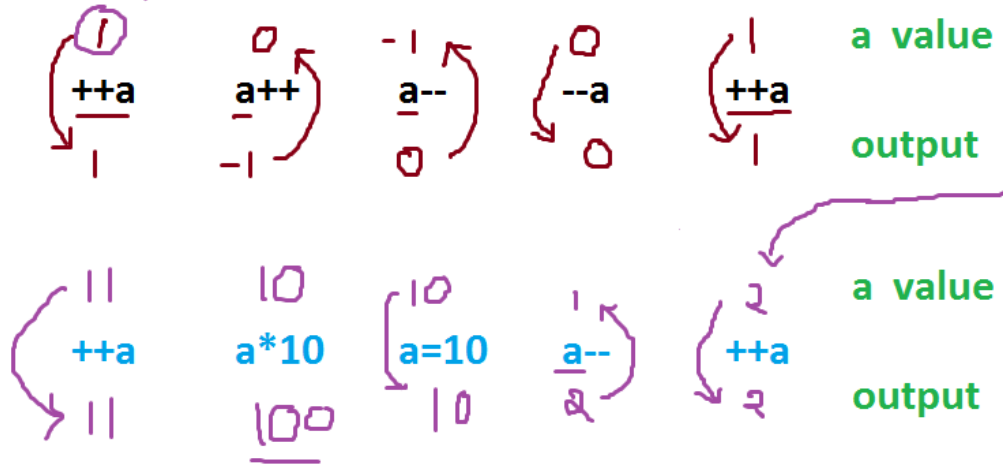
/*
In printf execution order is right to left and printing is left to right
1, -1, 0, 0, 1
11, 100, 10, 2, 2_
*/
```

The bottom window shows the output of the program:

```
1, -1, 0, 0, 1
11, 100, 10, 2, 2
```

The Windows taskbar at the bottom shows the time as 12:36 PM on 13-Jun-24. An "Activate Windows" watermark is visible in the bottom right corner of the output window.

a=0



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

```
File Edit Run Compile Project Options Debug Break/watch
Line 8 Col 27 Insert Indent Tab Fill Unindent * E:11AM.C
#include<stdio.h>
#include<conio.h>
main()
{
int a=9;
clrscr();
printf("%d,%d\n",++a,a=25);
printf("%d,%d,%d,%d\n",++a,a=printf("Hi\n"),a++, ++a);
getch();
}
```

The bottom window is the output console, which has a black background. It shows the output of the program:

```
26,25
Hi
4,3,27,27
```

Both windows have a yellow title bar with the text "TC". The Windows taskbar is visible at the bottom of the screen, showing various application icons and the system clock indicating 12:46 PM on 13-Jun-24. An "Activate Windows" watermark is present in the bottom right corner of both the code and output windows.