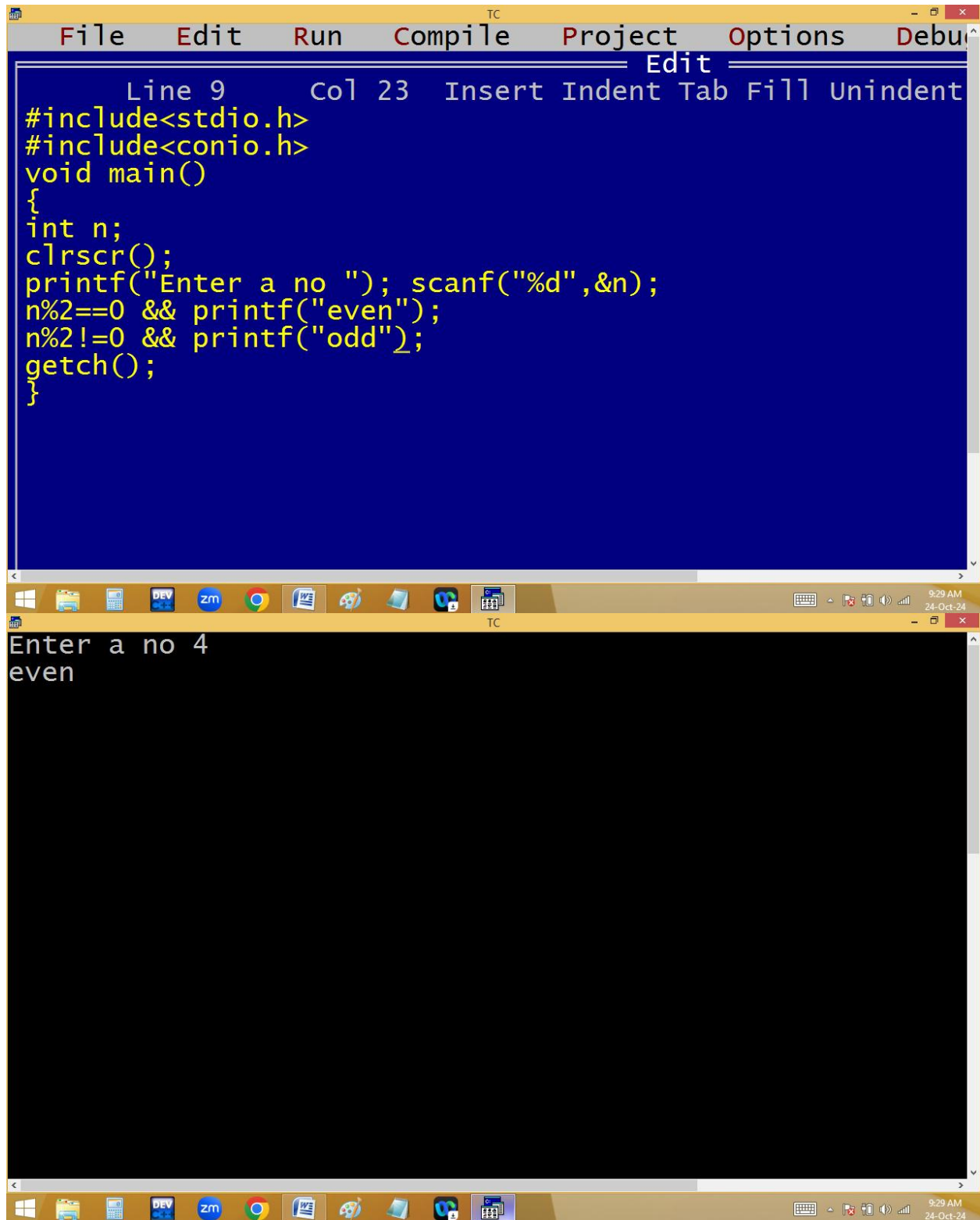


Finding even/odd without using if..else / ternary operator:



The image shows a screenshot of a Turbo C++ (TC) IDE. The top window displays a C program that checks if a number is even or odd using bitwise operations. The code is as follows:

```
Line 9      Col 23  Insert Indent Tab Fill Unindent
#include<stdio.h>
#include<conio.h>
void main()
{
    int n;
    clrscr();
    printf("Enter a no "); scanf("%d",&n);
    n%2==0 && printf("even");
    n%2!=0 && printf("odd");
    getch();
}
```

The bottom window shows the program's execution. It prompts the user to "Enter a no" and the user has entered "4". The program outputs "even".

Enter a no 4
even

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is a command prompt with the text "Enter a no 5" and "odd_" on separate lines. The bottom window is the TC editor, displaying a C program. The editor's menu bar includes File, Edit, Run, Compile, Project, Options, and Debug. The status bar at the bottom of the editor shows "Line 8 Col 26" and various editing options like Insert, Indent, Tab, Fill, and Unindent. The program code is as follows:

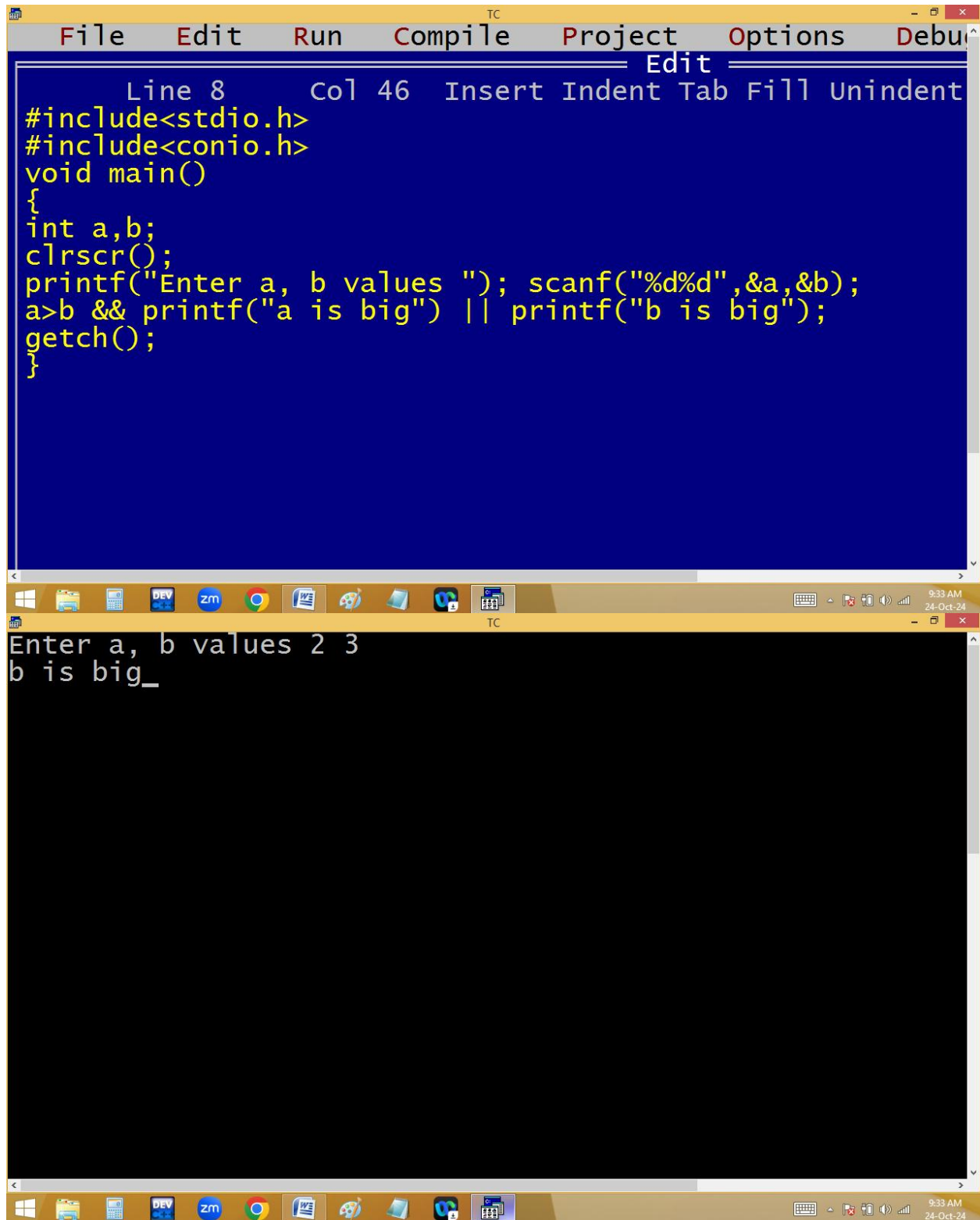
```
#include<stdio.h>
#include<conio.h>
void main()
{
    int n;
    clrscr();
    printf("Enter a no "); scanf("%d",&n);
    n%2==0 && printf("even") || printf("odd");
    getch();
}
```

The Windows taskbar at the bottom of the screen shows the time as 9:29 AM and 9:31 AM on 24-Oct-24, along with various system icons and application icons in the taskbar.

```
TC
Enter a no 8
even_
```

```
TC
Enter a no 9
odd
```

Finding max in 2 no's without using if..else / ternary op:



The screenshot displays the Turbo C++ (TC) IDE. The top window shows the source code for a program that finds the maximum of two integers, a and b, without using conditional statements. The code uses a logical AND operation to print the result. The bottom window shows the program's execution, where the user has entered '2 3' and the output is 'b is big_'. The Windows taskbar at the bottom shows the time as 9:33 AM on 24-Oct-24.

```
File Edit Run Compile Project Options Debug
Line 8 Col 46 Insert Indent Tab Fill Unindent
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d%d",&a,&b);
a>b && printf("a is big") || printf("b is big");
getch();
}
```

Enter a, b values 2 3
b is big_

```
TC
Enter a, b values 5 1
a is big_
```

```
TC
Enter a, b values 3 3
b is big
```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the editor, displaying a C program. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 8 Col 6 Insert Indent Tab Fill Unindent * E:9AM.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d%d",&a,&b);
a>b&&printf("a is big")||b>a&&printf("b is big")||printf("Both are equal");
getch();
}
```

Below the editor is a 'Watch' window, which is currently empty. A second menu bar below the Watch window contains function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu. The bottom window is the console, which shows the output of the program: 'Enter a, b values 3 3' followed by 'Both are equal'. The Windows taskbar at the bottom shows the time as 9:36 AM on 24-Oct-24.

```
TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 8 Col 6 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d%d",&a,&b);
a>b&&printf("a is big")||b>a&&printf("b is big")||printf("Both are equal");
getch();
}

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu
TC
Enter a, b values 3 3
Both are equal
TC
9:36 AM
24-Oct-24
```

Rounding of no:

Read a no and if the last digit is ≥ 5 go for next multiple of previous no, otherwise go for previous multiple.

Eg: 27 last digit is 7, above 5 then $\rightarrow 2+1=3*10=30$

23 last digit is 3, below 5 then $\rightarrow 2*10=20$

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the 'Edit' window, displaying a C program. The code is as follows:

```
Line 8 Col 52 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter n value "); scanf("%d",&n);
n%10>=5&&printf("%d", (n/10+1)*10)||printf("%d", n/10*10);
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with various function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window is the execution console, which shows the output of the program. It displays the prompt 'Enter n value 27' followed by the user input '30_'. The console background is black, and the text is white.


```
TC
Enter n value 23
20
```

```
TC
Enter n value 12345
12350
```

```
TC
Enter n value 12344
12340_
```

$23 \% 10 = 3 \geq 5$ → $23 / 10 = 2 * 10 = 20$

$27 \% 10 = 7 \geq 5$ && $27 / 10 = \underline{2} + 1 = 3 * 10 = 30$ || $27 / 10 = 2 * 10 = 20$

Finding cube value:

```
TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 9 Col 33 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n, cube;
clrscr();
printf("Enter n value "); scanf("%d",&n);
cube = n*n*n;
printf("%d cube = %d", n, cube);
getch();
}
```

Watch

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

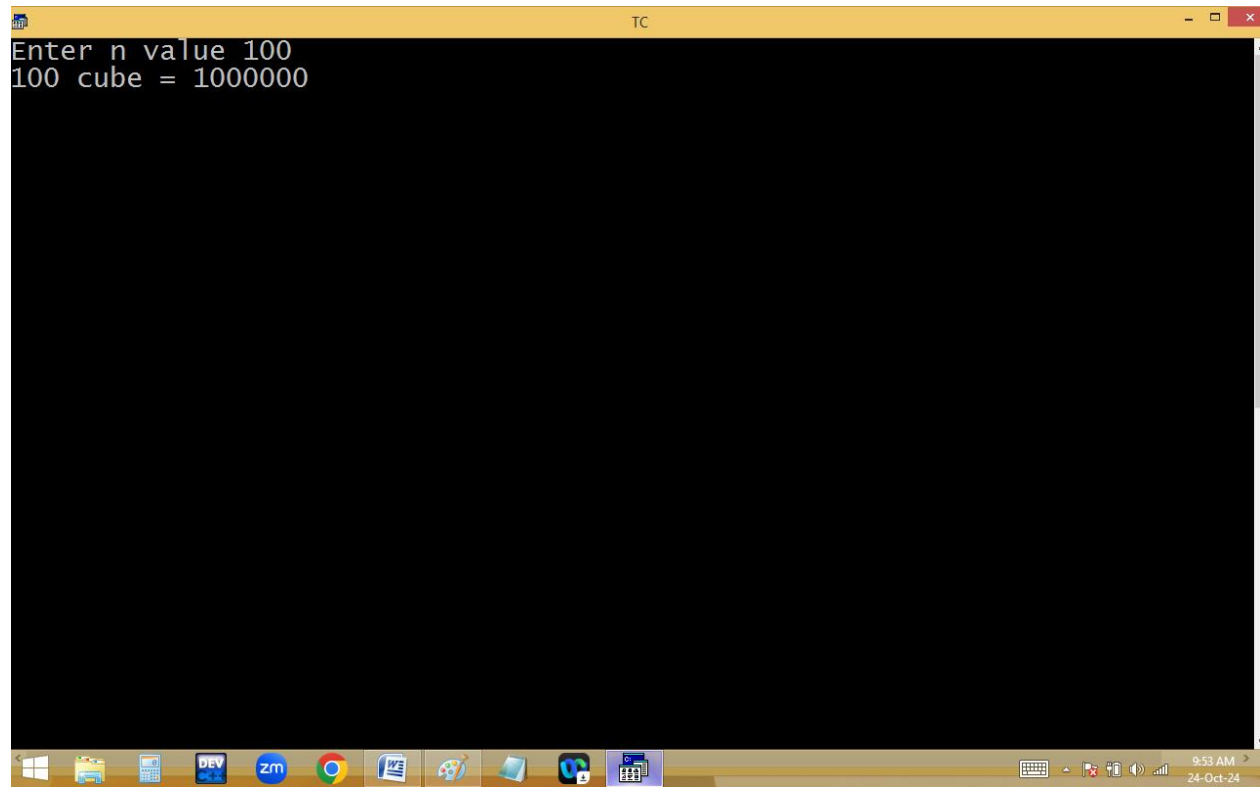
Enter n value 10
10 cube = 1000_

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window, titled 'TC', displays the output of a program: 'Enter n value 100' followed by '100 cube = 16960_'. The bottom window, also titled 'TC', shows the source code of the program. The code is as follows:

```
Line 9 Col 48 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
long int cube;
clrscr();
printf("Enter n value "); scanf("%d",&n);
cube = (long)n*n*n; /* explicit type casting */
printf("%d cube = %ld", n, cube);
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE, there is a menu bar with shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu. The Windows taskbar at the very bottom shows the time as 9:50 AM and 9:52 AM on 24-Oct-24.

```
TC
Enter n value 100
100 cube = 1000000
```

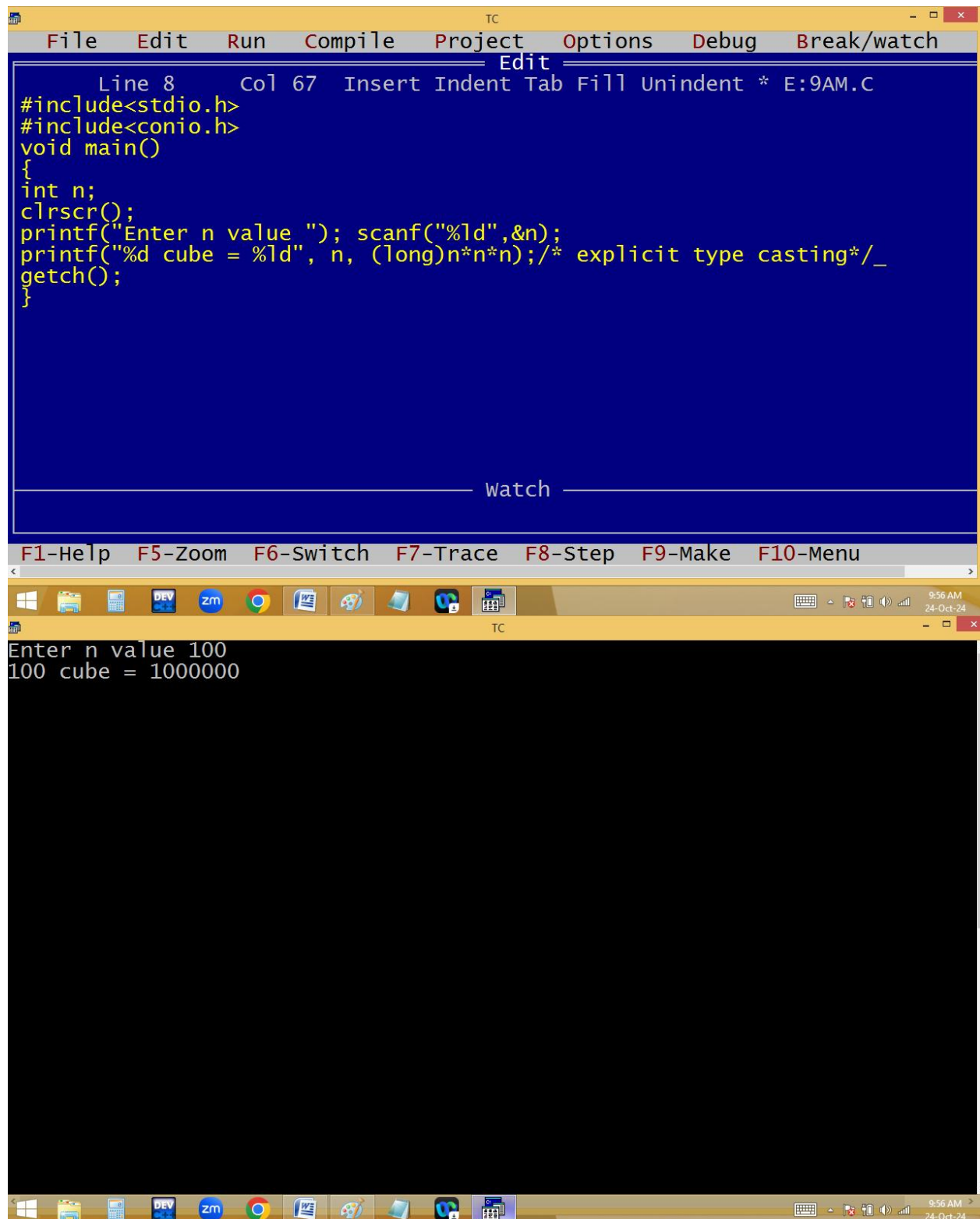


```
TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 7 Col 36 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long int n, cube;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
cube = n*n*n;
printf("%ld cube = %ld", n, cube);
getch();
}
```

Watch

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

Enter n value 100
100 cube = 1000000_



The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the 'Edit' window, displaying a C program. The code is as follows:

```
Line 8 Col 67 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
printf("%d cube = %ld", n, (long)n*n*n);/* explicit type casting*/_
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is the 'Output' window, which shows the execution results:

```
Enter n value 100
100 cube = 1000000
```

The Windows taskbar is visible at the bottom of the screen, showing the time as 9:56 AM on 24-Oct-24. The taskbar includes icons for the Start menu, File Explorer, Command Prompt, DEV C++, Zoom, Google Chrome, Word, Paint, and the TC application.

Finding power value:

$$2^5=32$$

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the 'Edit' window, displaying a C program named 'E:9AM.C'. The code is as follows:

```
Line 3 Col 17 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>_
void main()
{
int b,p;
clrscr();
printf("Enter base, power values "); scanf("%d %d",&b, &p);
printf("%d ^ %d = %d",b,p,pow(b,p));
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window is the 'TC' console window, which shows the program's execution. It displays the prompt 'Enter base, power values' followed by the user input '2 5'. The output of the program is '2 ^ 5 = 0_', where the underscore indicates the cursor position after the result.

```
Enter base, power values 2 5
2 ^ 5 = 0_
```

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the 'Edit' window, displaying a C program named 'E:9AM.C'. The code is as follows:

```
Line 11 Col 70 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
    int b,p;
    clrscr();
    printf("Enter base, power values "); scanf("%d %d",&b, &p);
    printf("%d ^ %d = %f\n",b,p,pow(b,p));
    printf("%d ^ %d = %.0f\n",b,p,pow(b,p));
    printf("%d ^ %d = %d",b,p,(int)pow(b,p)); /* explicit type casting */
    getch();
}
```

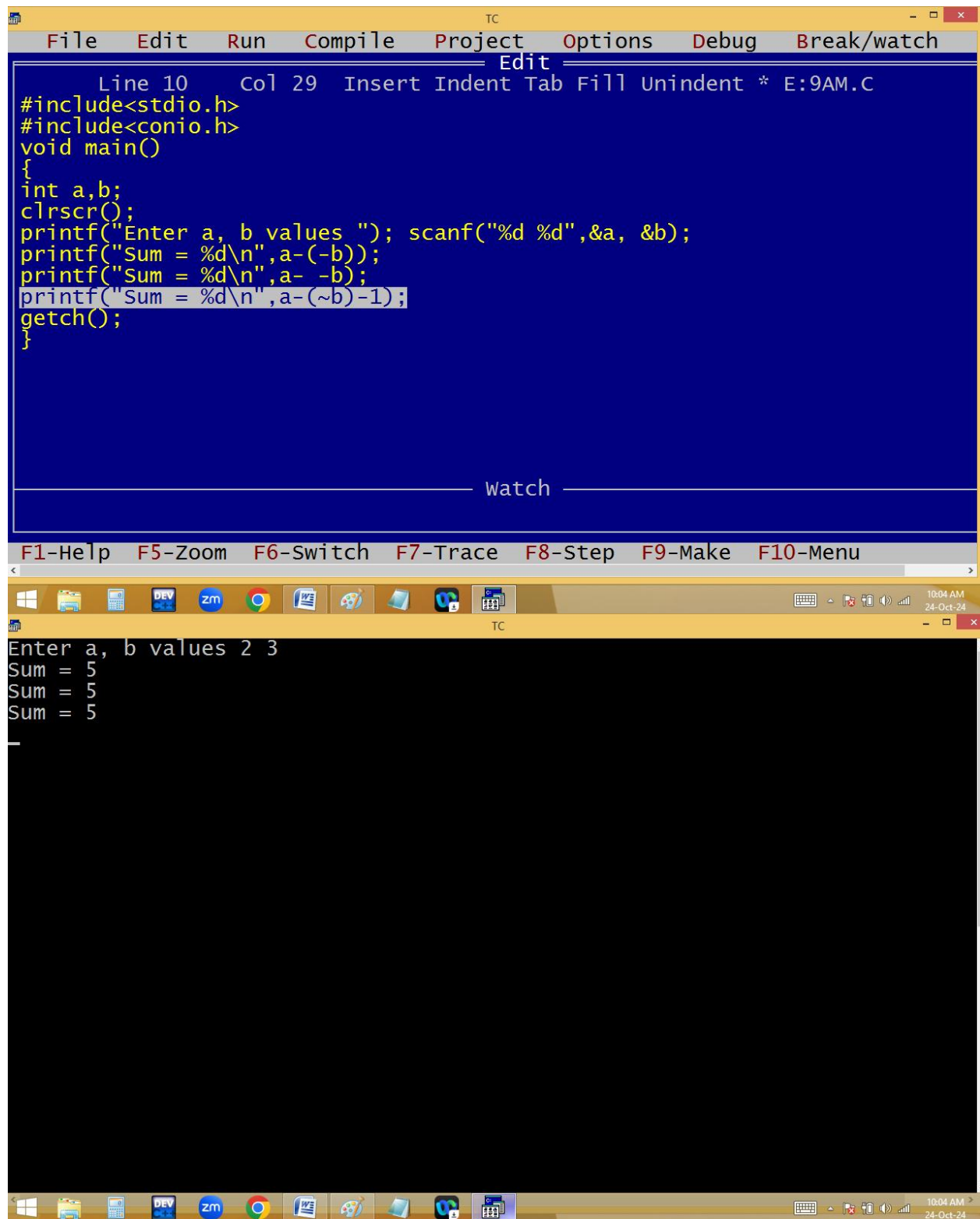
Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window is the execution output window, which shows the following text:

```
Enter base, power values 2 5
2 ^ 5 = 32.000000
2 ^ 5 = 32
2 ^ 5 = 32
```

The Windows taskbar at the bottom of the screen shows the time as 10:01 AM on 24-Oct-24. The taskbar includes icons for the Start menu, File Explorer, Command Prompt, DEV C++, Zoom, Google Chrome, Notepad, Paint, and the TC application.

Add two numbers without using + operator:



```
TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 10 Col 29 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
printf("Sum = %d\n",a-(-b));
printf("Sum = %d\n",a- -b);
printf("Sum = %d\n",a-(~b)-1);
getch();
}
```

Watch

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

Enter a, b values 2 3
Sum = 5
Sum = 5
Sum = 5

$$a-(\sim b)-1$$

$$10-(\sim 20)-1$$

$$10-(-21)-1$$

$$10+21-1=30$$

Swap [interchange] of two numbers:

Without using operators:

The image shows a screenshot of the Turbo C++ (TC) IDE. The top window is the 'Edit' window, displaying a C program for swapping two numbers. The code is as follows:

```
Line 9 Col 38 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
printf("Before swap a=%d, b=%d\n",a,b);
printf("After swap a=%d, b=%d\n",b,a);
getch();
}
```

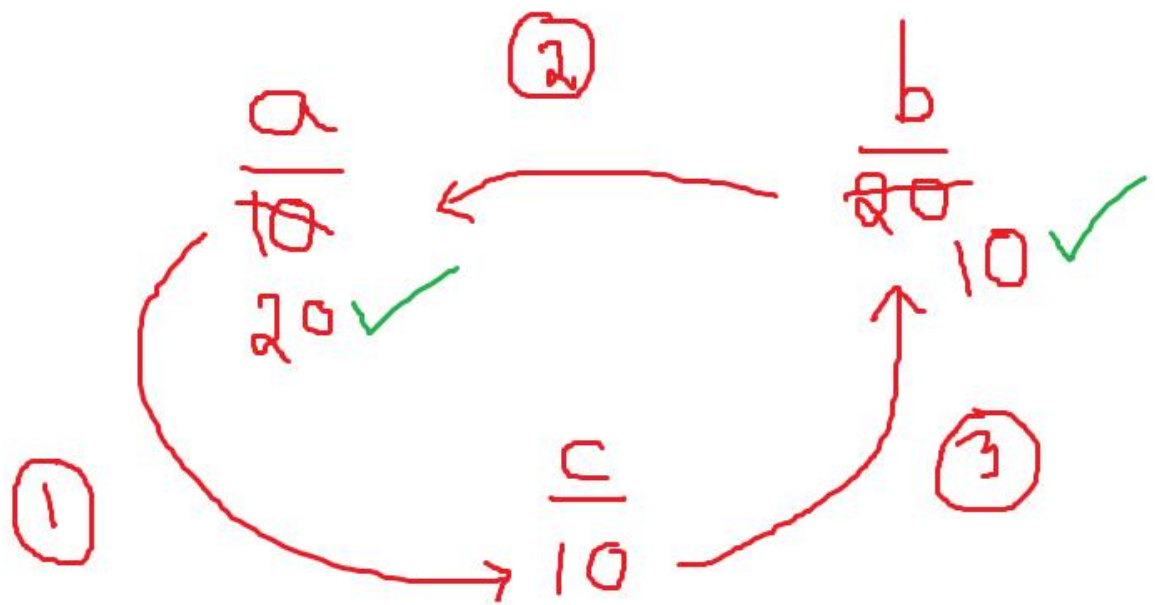
Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE is a toolbar with various function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window is the execution output window, which shows the following text:

```
Enter a, b values 10 20
Before swap a=10, b=20
After swap a=20, b=10
```

The Windows taskbar at the bottom of the screen shows the time as 10:14 AM on 24-Oct-24. The taskbar includes icons for the Start menu, File Explorer, Command Prompt, DEV C++, Zoom, Google Chrome, and other applications.

Using 3rd variable:



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 is as follows:

```
Line 10 Col 38 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
printf("Before swap a=%d, b=%d\n",a,b);
c=a; a=b; b=c;
printf("After swap a=%d, b=%d\n",a,b);
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE, there is a toolbar with function key shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window shows the execution output of the program:

```
Enter a, b values 2 5
Before swap a=2, b=5
After swap a=5, b=2
```

The Windows taskbar at the very bottom shows the time as 10:15 AM and the date as 24-Oct-24. The system tray includes icons for keyboard, network, and volume.

Without using 3rd variable:


```
TC
File Edit Run Compile Project Options Debug Break/watch
Edit
Line 12 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
printf("Before swap a=%d, b=%d\n",a,b);
/* a=a+b; b=a-b; a=a-b;
a=a*b; b=a/b; a=a/b; */
a=a^b; b=a^b; a=a^b;
printf("After swap a=%d, b=%d\n",a,b);
getch();
}

Watch

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Menu
10:18 AM 24-Oct-24
TC
Enter a, b values 10 20
Before swap a=10, b=20
After swap a=20, b=10
```

$a=10 \implies 30 \implies 20$

$b=20 \implies 10$

$a=a+b \implies 10+20=30$

$b=a-b \implies 30-20=10$

$a=a-b \implies 30-10=20$

$a=10 \implies 200 \implies 20$

$b=20 \implies 10$

$a=a*b \implies 10*20=200$

$b=a/b \implies 200/20=10$

$a=a/b \implies 200/10=20$

Handwritten binary division of 10 by 2:

$$\begin{array}{r} 2 \overline{) 10} \\ 2 \overline{) 5-0} \\ 2 \overline{) 2-1} \\ 1-0 \end{array}$$

Handwritten binary division of 20 by 2:

$$\begin{array}{r} 2 \overline{) 20} \\ 2 \overline{) 10-0} \\ 2 \overline{) 5-0} \\ 2 \overline{) 2-1} \\ 1-0 \end{array}$$

$a=10, b=20$

$a=a^b;$

$a=10=01010$

$b=20=\underline{10100}$

$11110=30$

$16 + 8 + 4 + 2$

$b=a^b;$

$a=30=11110$

$b=20=\underline{10100}$

$01010=10$

$a=a^b$

$a=30=11110$

$b=10=\underline{01010}$

$10100=20$

$a=30, b=20$

$a=30, b=10$

$a=20, b=10$

Read a baby age in no of days and find the baby age in years, months, weeks and days.

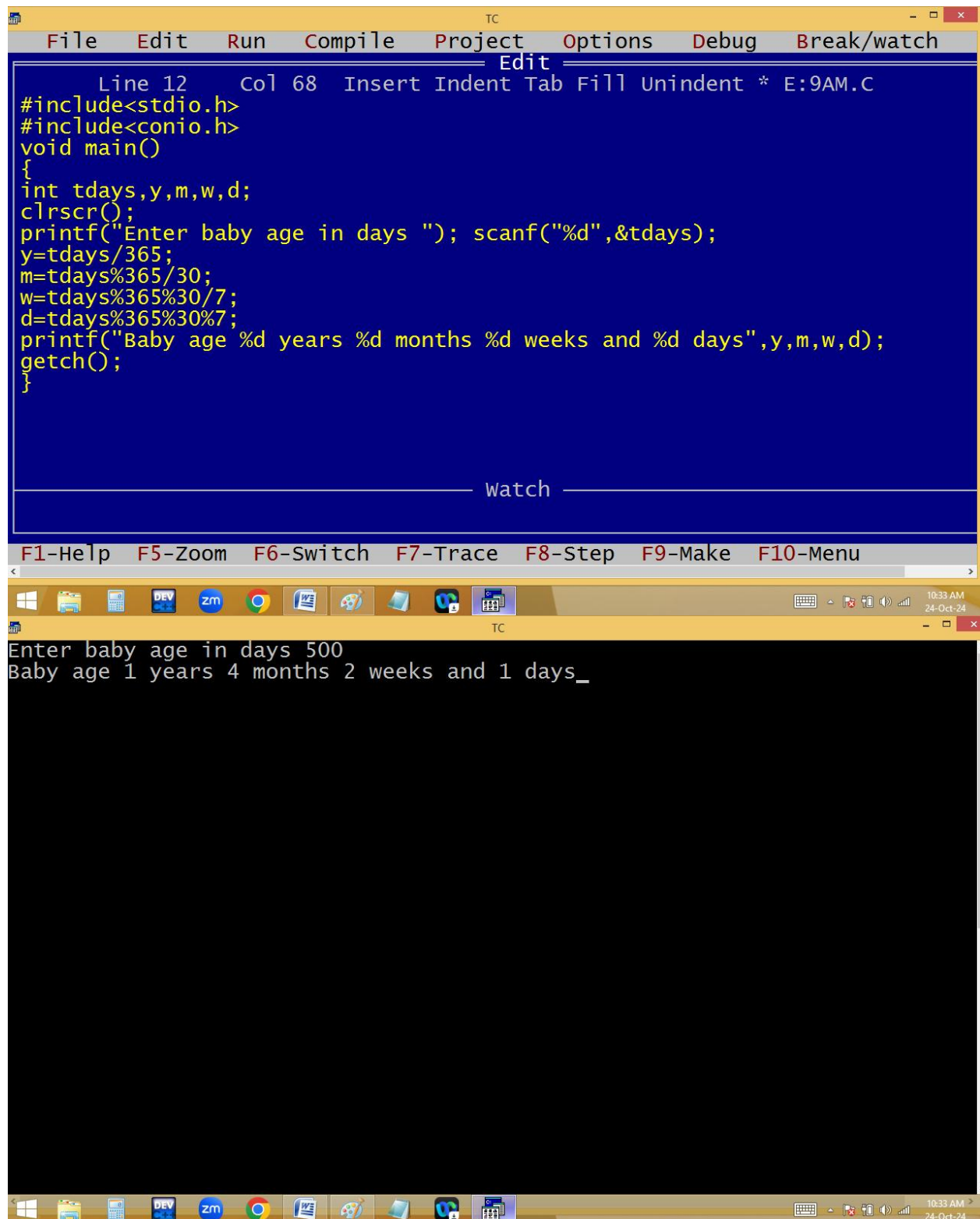
$$y=500/365=1$$

$$m=500\%365=135/30=4$$

$$w=500\%365=135\%30=15/7=2$$

$$d=500\%365=135\%30=15\%7=1$$

$$\begin{array}{r} \text{tdays} \\ 365 \overline{) 500} (1 - y \\ \underline{365} \\ 135 \\ 30 \overline{) 135} (4 - m \\ \underline{120} \\ 15 \\ 7 \overline{) 15} (2 - w \\ \underline{14} \\ 1 - d \end{array}$$



The image shows a screenshot of the Turbo C++ (TC) IDE. The main window displays a C program for calculating baby age. The code is as follows:

```
Line 12 Col 68 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int tdays,y,m,w,d;
clrscr();
printf("Enter baby age in days "); scanf("%d",&tdays);
y=tdays/365;
m=tdays%365/30;
w=tdays%365%30/7;
d=tdays%365%30%7;
printf("Baby age %d years %d months %d weeks and %d days",y,m,w,d);
getch();
}
```

Below the code editor is a "Watch" section. At the bottom of the IDE, there is a function key bar with shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Menu.

The bottom window shows the program's execution. It prompts "Enter baby age in days" and the user has entered "500". The output is "Baby age 1 years 4 months 2 weeks and 1 days_".

```
TC
Enter baby age in days 5000
Baby age 13 years 8 months 2 weeks and 1 days_
```

```
TC
Enter baby age in days 30000
Baby age 82 years 2 months 1 weeks and 3 days
```

```
TC
Enter baby age in days 40000
Baby age -69 years -11 months -3 weeks and 0 days
```

```
TC
Enter baby age in days 200
Baby age 0 years 6 months 2 weeks and 6 days_
```

```
TC
Enter baby age in days 3
Baby age 0 years 0 months 0 weeks and 3 days_
```

```
TC
Enter baby age in days -3
Baby age 0 years 0 months 0 weeks and -3 days_
```

Read baby age in years, months, weeks and days. Find total no of days.

1 y 4 m 2 w 4 days = 500 days

$1 * 365 + 4 * 30 + 2 * 7 + 1 = 500 \text{ days}$

The image shows a screenshot of the Turbo C++ (TC) IDE. The main window displays a C program for calculating a baby's age in days based on years, months, weeks, and days. The code is as follows:

```
Line 10 Col 33 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int tdays,y,m,w,d;
clrscr();
printf("Enter baby age in years, months, weeks and days ");
scanf("%d %d %d %d",&y,&m,&w,&d);
tdays=y*365+30*m+w*7+d;
printf("Baby age %d days",tdays);
getch();
}
```

Below the code editor is a 'Watch' window, which is currently empty. At the bottom of the IDE, there is a command prompt window with the following text:

```
Enter baby age in years, months, weeks and days 1 4 2 1
Baby age 500 days_
```

The Windows taskbar at the bottom shows the time as 10:39 AM on 24-Oct-24. The taskbar includes icons for the Start menu, File Explorer, Dev C++, Zoom, Google Chrome, Word, Paint, and the Turbo C++ application.

```
TC
Enter baby age in years, months, weeks and days 22 3 3 3
Baby age 8144 days_
```

Celsius to Fahrenheit conversion: