

1. A Program To Declare Two Integers and One Float Variables Then Initialize Them To 10,15 and 12.6 and Print the Variable Values In The Screen :

```
#include<iostream>

using namespace std;

int main()

{

    int a,b;

    float c;

    a=10;

    b=15;

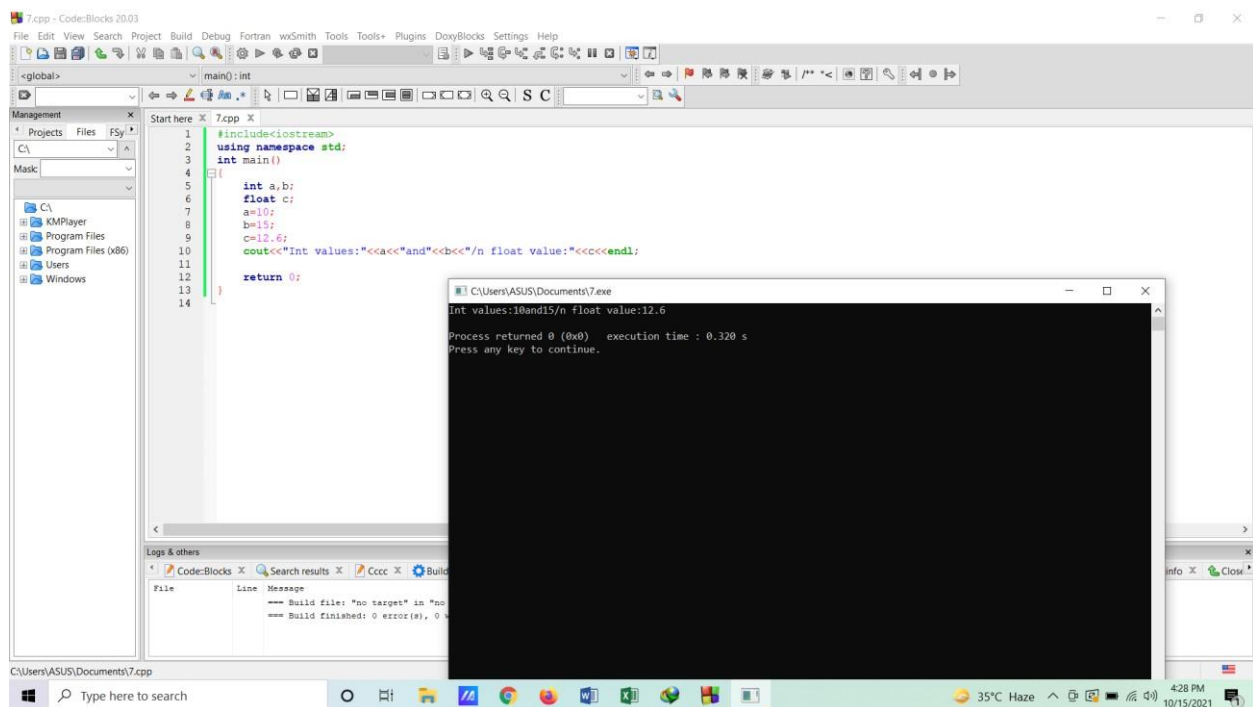
    c=12.6;

    cout<<"Int values:"<<a<<"and"<<b<<"/n float value:"<<c<<endl;


    return 0;

}
```

Result :



The screenshot shows the Code::Blocks IDE with a C++ project named '7.cpp'. The code in the editor is as follows:

```
1 #include<iostream>
2 using namespace std;
3 int main()
4 {
5     int a,b;
6     float c;
7     a=10;
8     b=15;
9     c=12.6;
10    cout<<"Int values:"<<a<<"and"<<b<<"/n float value:"<<c<<endl;
11
12
13
14    return 0;
15 }
```

The output window shows the following text:

```
Int values:10and15/n float value:12.6
Process returned 0 (0x0)   execution time : 0.320 s
Press any key to continue.
```

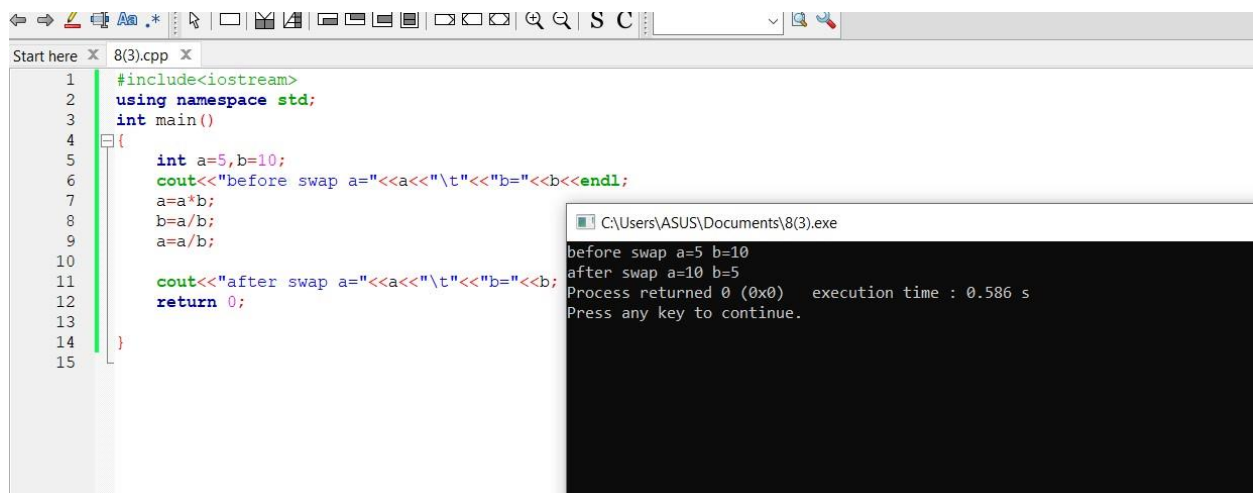
2. Write a program to swap into two variable values with and without using third variables :

Code :

```
#include<iostream>
using namespace std;
int main() {
    int a=5,b=10;
    cout<<"before swap a="<<a<<"\t"<<"b="<<b<<endl;
    a=a*b;    b=a/b;
    a=a/b;

    cout<<"after swap a="<<a<<"\t"<<"b="<<b;
    return 0;
}
```

Result:

The screenshot shows a C++ IDE with a file named 8(3).cpp. The code is as follows:

```
1 #include<iostream>
2 using namespace std;
3 int main()
4 {
5     int a=5,b=10;
6     cout<<"before swap a="<<a<<"\t"<<"b="<<b<<endl;
7     a=a*b;
8     b=a/b;
9     a=a/b;
10
11     cout<<"after swap a="<<a<<"\t"<<"b="<<b;
12     return 0;
13 }
14
15
```

The output window shows the execution results:

```
C:\Users\ASUS\Documents\8(3).exe
before swap a=5 b=10
after swap a=10 b=5
Process returned 0 (0x0)   execution time : 0.586 s
Press any key to continue.
```

3.(a) Write a program to check a even or a odd number : (using a modulus operator)

Code:

```
#include<iostream> using
namespace std;
int main ()
{
    int n;

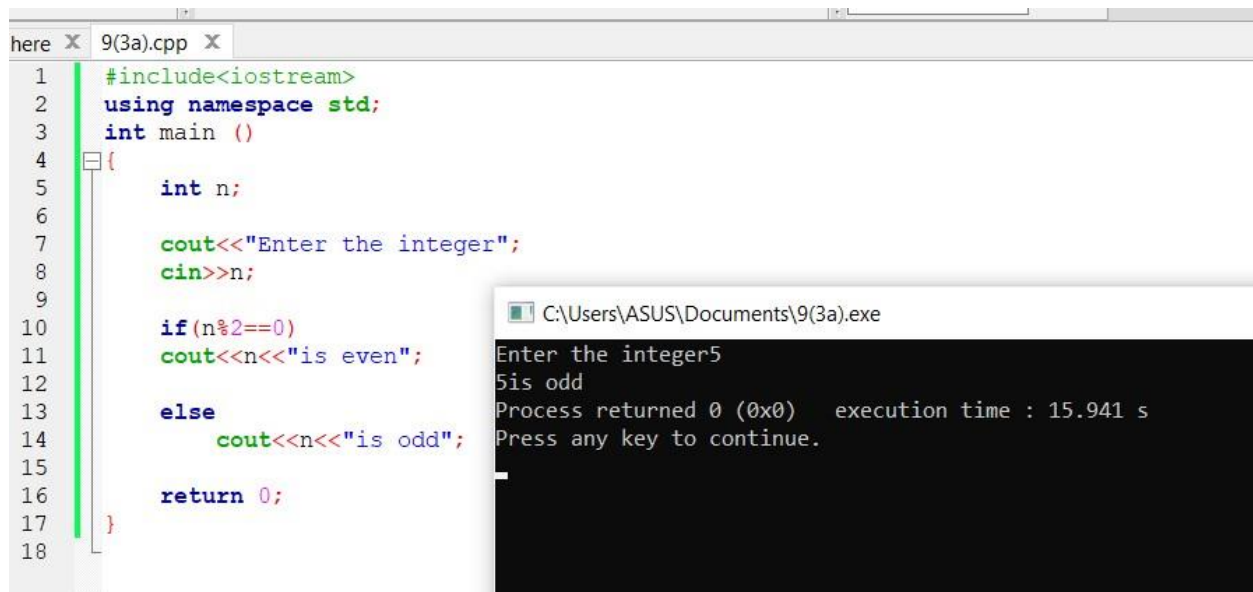
    cout<<"Enter the integer";
    cin>>n;
```

```
    if(n%2==0)
        cout<<n<<"is even";

    else
        cout<<n<<"is odd";

    return 0;
}
```

Result:



The image shows a screenshot of a C++ program and its execution. On the left, a code editor window titled '9(3a).cpp' displays the following code:

```
1  #include<iostream>
2  using namespace std;
3  int main ()
4  {
5      int n;
6
7      cout<<"Enter the integer";
8      cin>>n;
9
10     if(n%2==0)
11         cout<<n<<"is even";
12
13     else
14         cout<<n<<"is odd";
15
16     return 0;
17 }
18
```

On the right, a terminal window titled 'C:\Users\ASUS\Documents\9(3a).exe' shows the program's execution. It prompts 'Enter the integer' and the user enters '5'. The output is '5is odd'. Below this, it shows 'Process returned 0 (0x0)' and 'execution time : 15.941 s'. The prompt 'Press any key to continue.' is visible at the bottom of the terminal window.

3. (b) **Write a program to check a even or a odd number :**
(Using a bitwise operator)

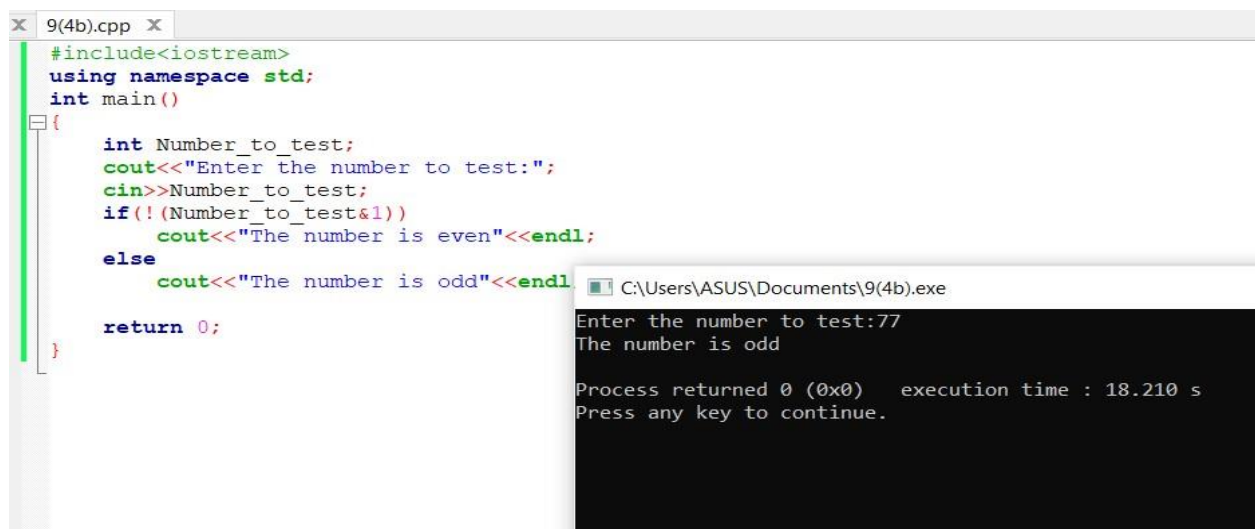
Code:

```
#include<iostream> using
namespace std;
```

```
int main() {
    int Number_to_test;
    cout<<"Enter the number to test:";
    cin>>Number_to_test;
    if(!(Number_to_test&1))
        cout<<"The number is even"<<endl;
    else
        cout<<"The number is odd"<<endl;

    return 0;
}
```

Result:

The image shows a screenshot of a C++ program and its execution. On the left, a code editor window titled '9(4b).cpp' displays the following code:

```
#include<iostream>
using namespace std;
int main()
{
    int Number_to_test;
    cout<<"Enter the number to test:";
    cin>>Number_to_test;
    if(!(Number_to_test&1))
        cout<<"The number is even"<<endl;
    else
        cout<<"The number is odd"<<endl;

    return 0;
}
```

On the right, a terminal window titled 'C:\Users\ASUS\Documents\9(4b).exe' shows the program's output:

```
Enter the number to test:77
The number is odd

Process returned 0 (0x0)   execution time : 18.210 s
Press any key to continue.
```

3. (c) Write a program to check a even or a odd number :

(Without using a bitwise and modulus operator)

Code:

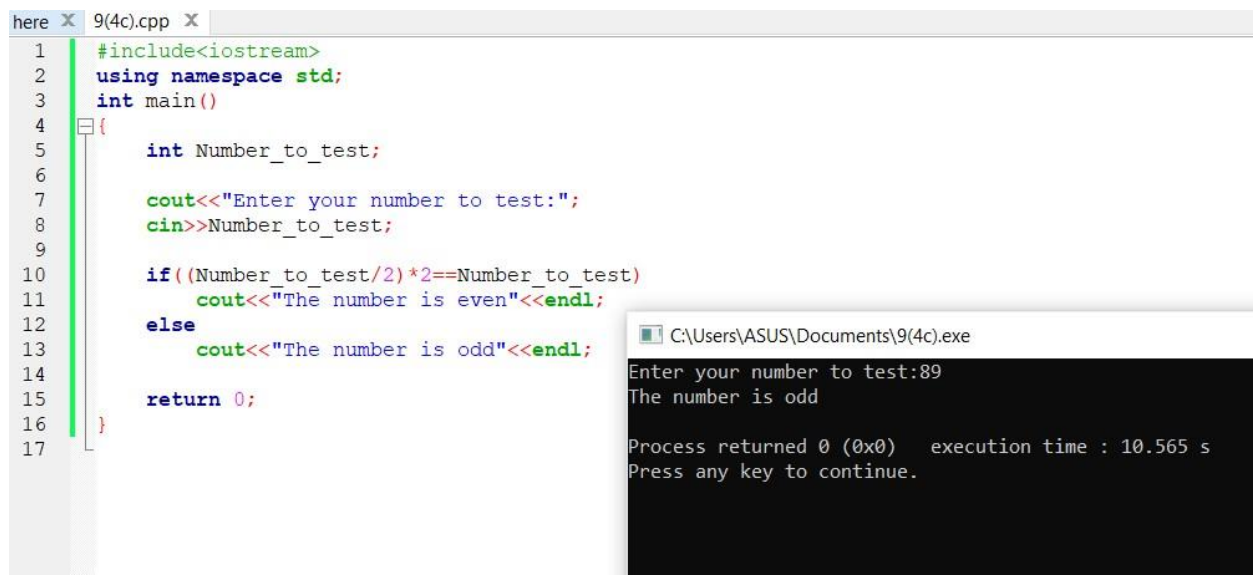
```
#include<iostream>
using namespace std;
int main() {
    int Number_to_test;

    cout<<"Enter your number to test:";
    cin>>Number_to_test;

    if((Number_to_test/2)*2==Number_to_test)
    cout<<"The number is even"<<endl;   else
        cout<<"The number is odd"<<endl;

    return 0;
}
```

Result:



```
1 #include<iostream>
2 using namespace std;
3 int main()
4 {
5     int Number_to_test;
6
7     cout<<"Enter your number to test:";
8     cin>>Number_to_test;
9
10    if((Number_to_test/2)*2==Number_to_test)
11        cout<<"The number is even"<<endl;
12    else
13        cout<<"The number is odd"<<endl;
14
15    return 0;
16 }
17
```

C:\Users\ASUS\Documents\9(4c).exe

Enter your number to test:89
The number is odd

Process returned 0 (0x0) execution time : 10.565 s
Press any key to continue.

3. (d).Print the value of y for given x=2 and z=4 and analyze the output.
(Using conditional operator)

Code:

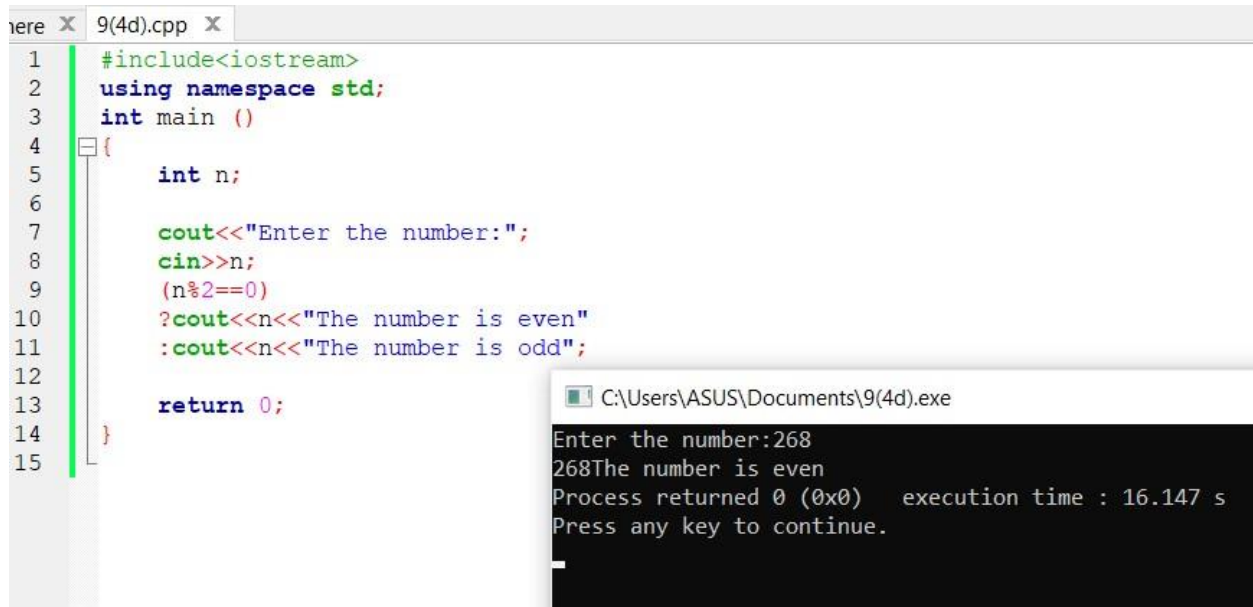
```
#include<iostream>
using namespace std;

int main ()
{
    int n;

    cout<<"Enter the number:";
    cin>>n;
    (n%2==0)
    ?cout<<n<<"The number is even"
    :cout<<n<<"The number is odd";

    return 0;
}
```

Result:



The image shows a code editor window with a file named '9(4d).cpp'. The code is a C++ program that checks if a number is even or odd. It includes the <iostream> header, uses the std namespace, and defines a main function. Inside main, it declares an integer n, prompts the user to enter a number, reads the input, and then checks if the number is even (n%2==0). If even, it prints 'The number is even'; otherwise, it prints 'The number is odd'. The program returns 0. To the right of the code editor, there is a console window titled 'C:\Users\ASUS\Documents\9(4d).exe'. The console output shows the user entering '268', followed by the program outputting '268The number is even'. It also displays 'Process returned 0 (0x0) execution time : 16.147 s' and 'Press any key to continue.'.

```
1 #include<iostream>
2 using namespace std;
3 int main ()
4 {
5     int n;
6
7     cout<<"Enter the number:";
8     cin>>n;
9     (n%2==0)
10    ?cout<<n<<"The number is even"
11    :cout<<n<<"The number is odd";
12
13    return 0;
14 }
15
```

C:\Users\ASUS\Documents\9(4d).exe

Enter the number:268
268The number is even
Process returned 0 (0x0) execution time : 16.147 s
Press any key to continue.

5(a).Print the value of y for given x=2 and z=4 and analyze the output.

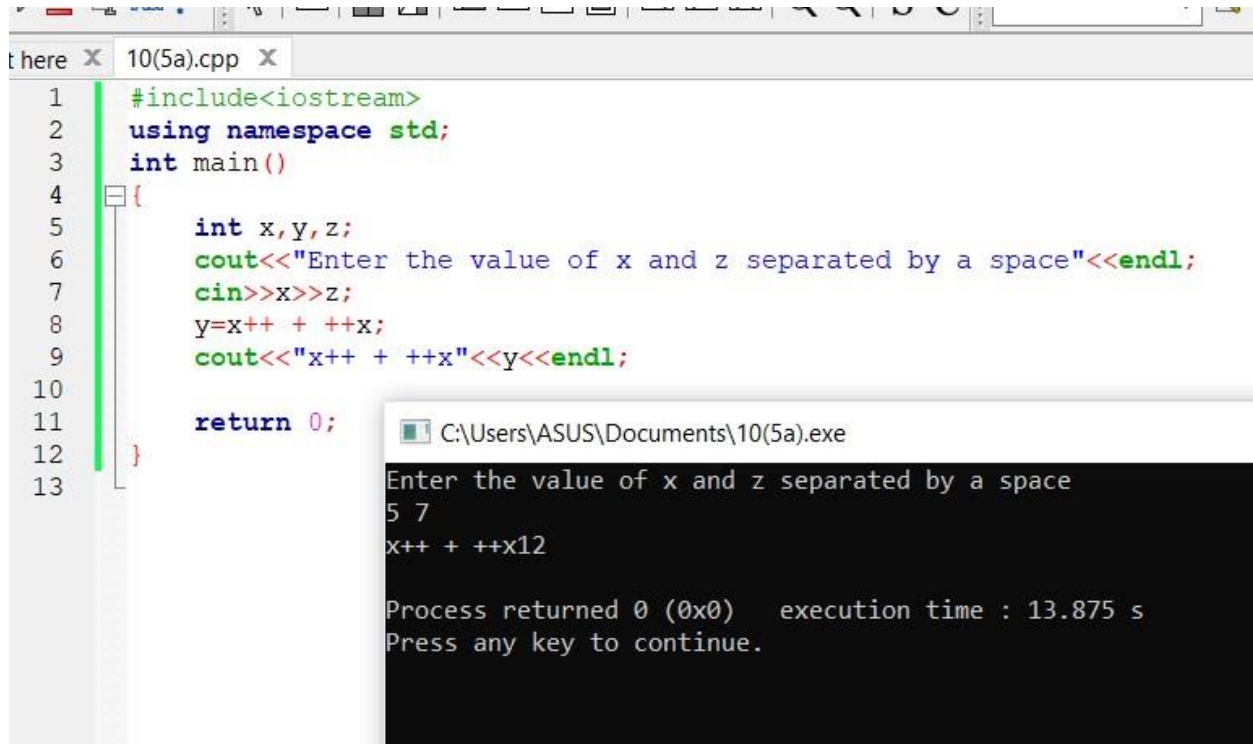
Here, $y = x++ + ++x$

Code :

```
#include<iostream>
using namespace std;
int main()
{
    int x,y,z;
    cout<<"Enter the value of x and z separated by a space"<<endl;
    cin>>x>>z;    y=x++ + ++x;
    cout<<"x++ + ++x"<<y<<endl;

    return 0;
}
```

Result :

The image shows a screenshot of a C++ program being executed. On the left, a code editor window titled '10(5a).cpp' displays the following code:

```
1  #include<iostream>
2  using namespace std;
3  int main()
4  {
5      int x,y,z;
6      cout<<"Enter the value of x and z separated by a space"<<endl;
7      cin>>x>>z;
8      y=x++ + ++x;
9      cout<<"x++ + ++x"<<y<<endl;
10
11     return 0;
12 }
13
```

On the right, a console window titled 'C:\Users\ASUS\Documents\10(5a).exe' shows the program's output:

```
Enter the value of x and z separated by a space
5 7
x++ + ++x12

Process returned 0 (0x0)   execution time : 13.875 s
Press any key to continue.
```

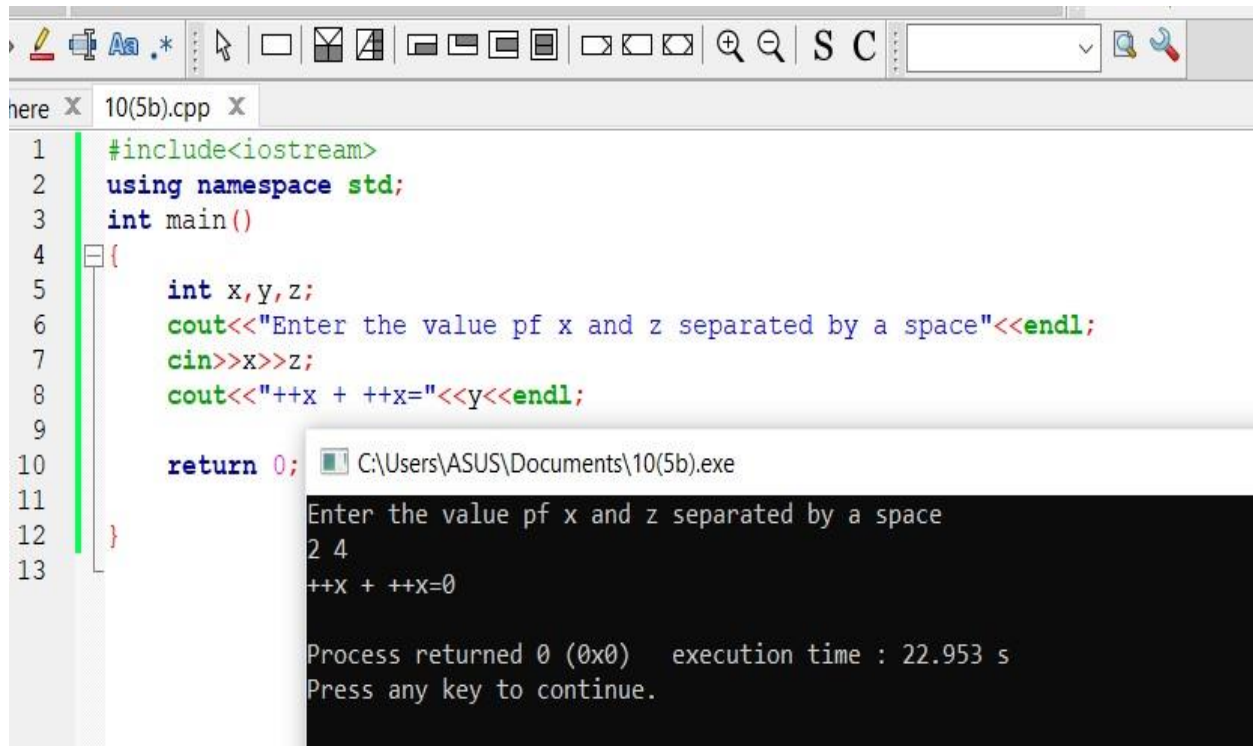

5(b).Print the value of y for given x=2 and z=4 and analyze the output.
Here, y=++x + ++x

Code:

```
#include<iostream>
using namespace std;
int main()
{
    int x,y,z;
    cout<<"Enter the value pf x and z separated by a space"<<endl;
    cin>>x>>z;
    cout<<"++x + ++x="<<y<<endl;

    return 0;
}
```

Result :

The image shows a screenshot of a C++ IDE. The top part displays the source code for a program named 10(5b).cpp. The code includes the iostream header, uses the std namespace, and defines a main function. Inside main, it declares three integer variables x, y, and z. It prompts the user to enter values for x and z, reads them, and then prints the sum of ++x and ++x. The bottom part of the screenshot shows the program's execution. It prompts for input, the user enters '2 4', and the program outputs '++x + ++x=0'. The process returns 0 and the execution time is 22.953 seconds.

```
1  #include<iostream>
2  using namespace std;
3  int main()
4  {
5      int x,y,z;
6      cout<<"Enter the value pf x and z separated by a space"<<endl;
7      cin>>x>>z;
8      cout<<"++x + ++x="<<y<<endl;
9
10     return 0;
11 }
12
13
```

Enter the value pf x and z separated by a space
2 4
++x + ++x=0
Process returned 0 (0x0) execution time : 22.953 s
Press any key to continue.

5(c) Here, $y = ++x + ++x + ++x$;

Code :

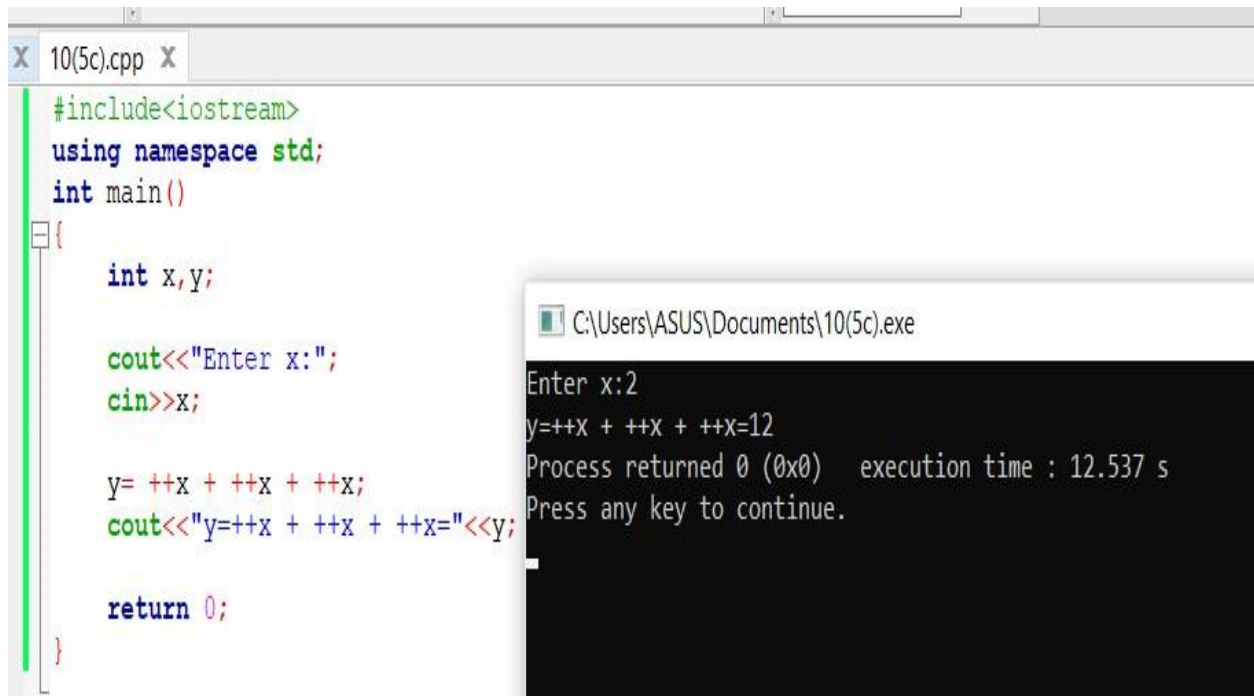
```
#include<iostream> using
namespace std;
int main() {
    int x,y;

    cout<<"Enter x:";
    cin>>x;

    y= ++x + ++x + ++x;
    cout<<"y=++x + ++x + ++x="<<y;

    return 0;
}
```

Code :

The image shows a screenshot of a C++ development environment. On the left, a code editor window titled '10(5c).cpp' displays the following code:

```
#include<iostream>
using namespace std;
int main()
{
    int x,y;

    cout<<"Enter x:";
    cin>>x;

    y= ++x + ++x + ++x;
    cout<<"y=++x + ++x + ++x="<<y;

    return 0;
}
```

On the right, a console window titled 'C:\Users\ASUS\Documents\10(5c).exe' shows the program's execution. It prompts 'Enter x:' and receives the input '2'. It then outputs 'y=++x + ++x + ++x=12', followed by 'Process returned 0 (0x0) execution time : 12.537 s' and 'Press any key to continue.'.

5(d).Print the value of y for given x=2 and z=4 and analyze the output.

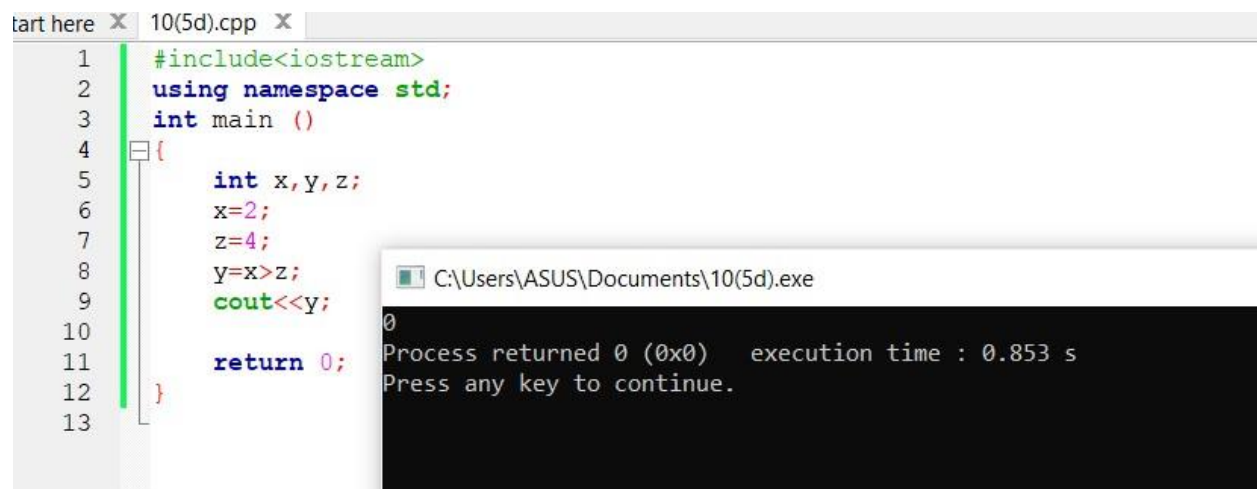
Here, $y=x>z$

Code :

```
#include<iostream>
using namespace std;
int main ()
{
    int x,y,z;
    x=2;
    z=4;
    y=x>z;
    cout<<y;

    return 0;
}
```

Result :

The image shows a screenshot of a C++ development environment. On the left, a code editor window titled '10(5d).cpp' displays the following code:

```
1  #include<iostream>
2  using namespace std;
3  int main ()
4  {
5      int x,y,z;
6      x=2;
7      z=4;
8      y=x>z;
9      cout<<y;
10
11     return 0;
12 }
13
```

On the right, a console window titled 'C:\Users\ASUS\Documents\10(5d).exe' shows the output of the program. It displays the number '0' on the first line, followed by 'Process returned 0 (0x0) execution time : 0.853 s' and 'Press any key to continue.' on the second line.

5(e). Print the value of y for given x=2 and z=4 and analyze the output.

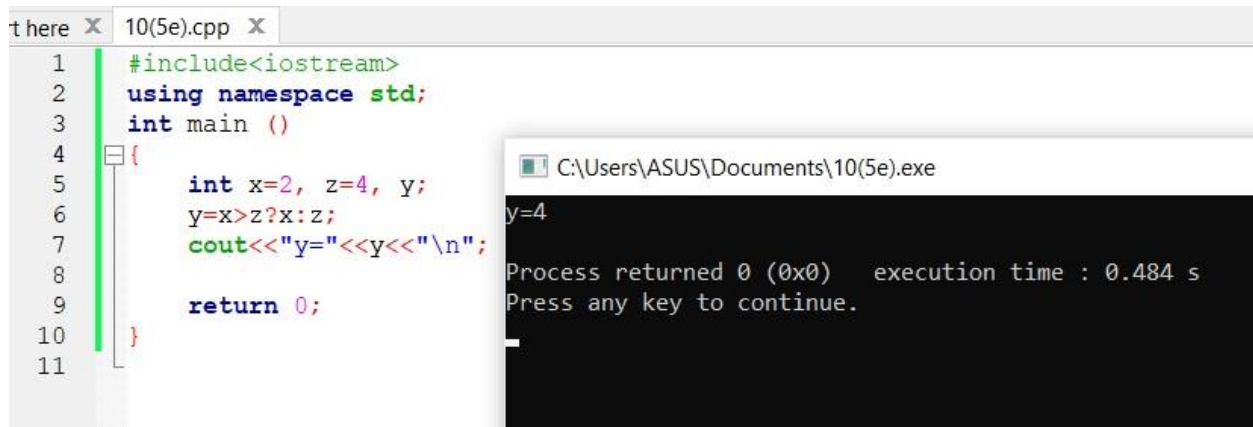
Here, $y = x > z ? x : z$;

Code :

```
#include<iostream>
using namespace std;
int main ()
{
    int x=2, z=4, y;
    y=x>z?x:z;
    cout<<"y="<<y<<"\n";

    return 0;
}
```

Result :

The screenshot shows a C++ IDE with a file named 10(5e).cpp. The code is as follows:

```
1  #include<iostream>
2  using namespace std;
3  int main ()
4  {
5      int x=2, z=4, y;
6      y=x>z?x:z;
7      cout<<"y="<<y<<"\n";
8
9      return 0;
10 }
11
```

To the right of the code editor, there is a console window titled "C:\Users\ASUS\Documents\10(5e).exe". It displays the output "y=4", followed by "Process returned 0 (0x0) execution time : 0.484 s" and "Press any key to continue.".

5(f) Here, $y = x \& z$;

Code :

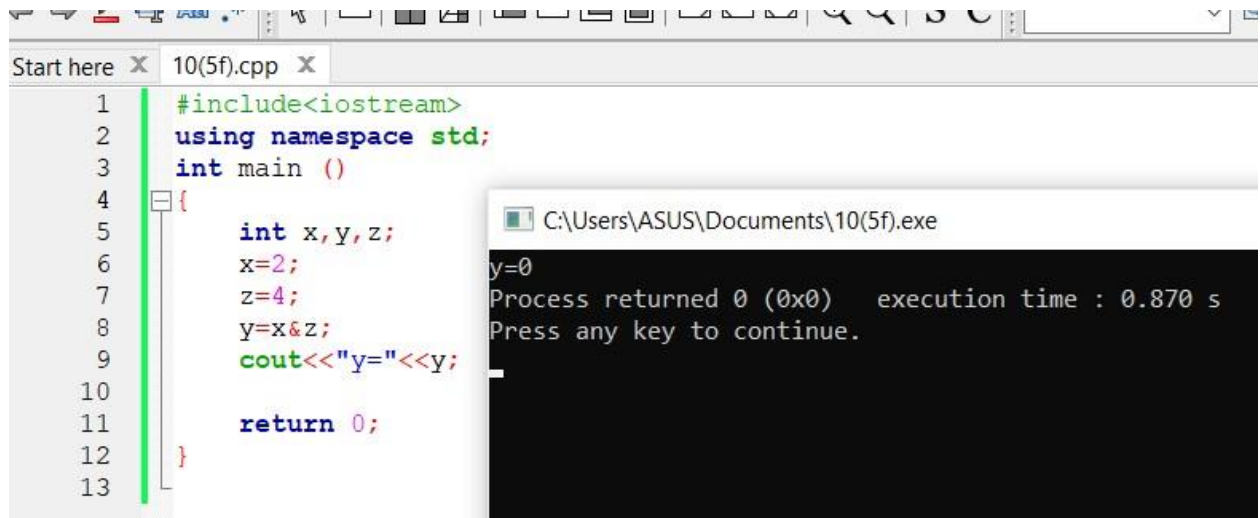
```

#include<iostream>
using namespace std;
int main ()
{
    int x,y,z;
    x=2;
    z=4;
    y=x&z;
    cout<<"y="<<y;

    return 0;
}

```

Result :



The screenshot shows a C++ IDE with a file named 10(5f).cpp. The code is as follows:

```

1  #include<iostream>
2  using namespace std;
3  int main ()
4  {
5      int x,y,z;
6      x=2;
7      z=4;
8      y=x&z;
9      cout<<"y="<<y;
10
11     return 0;
12 }
13

```

Below the code editor, a console window titled "C:\Users\ASUS\Documents\10(5f).exe" displays the output:

```

y=0
Process returned 0 (0x0)   execution time : 0.870 s
Press any key to continue.

```

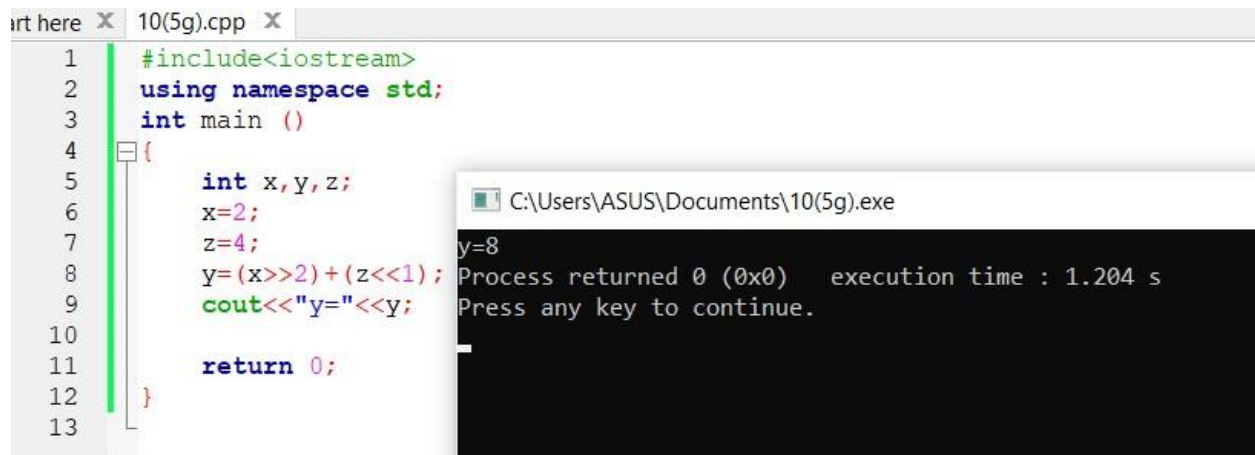
5(g) Here, $y = x \gg 2 + z \ll 1$;

Code :

```
#include<iostream>
using namespace std;
int main ()
{
    int x,y,z;
    x=2;
    z=4;
    y=(x>>2)+(z<<1);
    cout<<"y="<<y;

    return 0;
}
```

Result :



The screenshot displays a C++ IDE with two windows. The top window, titled '10(5g).cpp', shows the source code from the previous block. The bottom window, titled 'C:\Users\ASUS\Documents\10(5g).exe', shows the program's output. The output consists of the text 'y=8' on the first line, followed by 'Process returned 0 (0x0) execution time : 1.204 s' and 'Press any key to continue.' on the second line.

```
1  #include<iostream>
2  using namespace std;
3  int main ()
4  {
5      int x,y,z;
6      x=2;
7      z=4;
8      y=(x>>2)+(z<<1);
9      cout<<"y="<<y;
10
11     return 0;
12 }
13
```

C:\Users\ASUS\Documents\10(5g).exe

y=8

Process returned 0 (0x0) execution time : 1.204 s

Press any key to continue.