

C++ Operators

Assignment Solutions

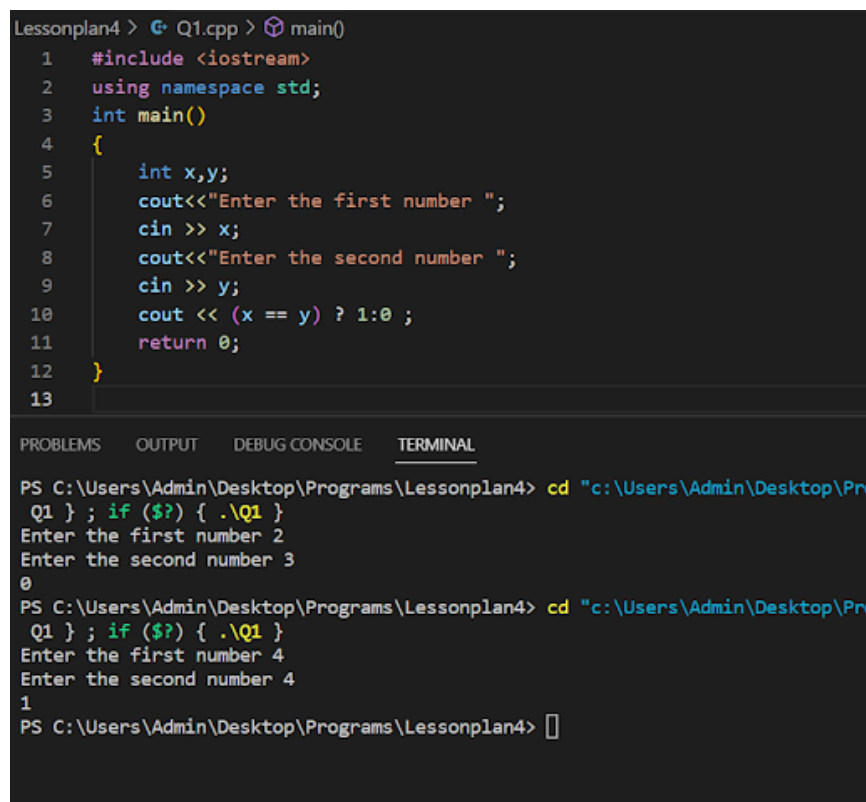


Q1 - Write a program to check whether two numbers (entered by user) are equal or not (0 for not equal, 1 for equal)

```
#include <iostream>

using namespace std;

int main()
{
    int x,y;
    cout<<"Enter the first number ";
    cin >> x;
    cout<<"Enter the second number ";
    cin >> y;
    cout << (x == y) ? 1:0 ;
    return 0;
}
```



The screenshot shows a C++ IDE with a code editor and a terminal window. The code editor displays the same code as the previous block. The terminal window shows the execution of the program. It prompts the user to enter the first and second numbers. In the first run, the user enters 2 and 3, and the program outputs 0. In the second run, the user enters 4 and 4, and the program outputs 1.

```
Lessonplan4 > G+ Q1.cpp > main()
1  #include <iostream>
2  using namespace std;
3  int main()
4  {
5      int x,y;
6      cout<<"Enter the first number ";
7      cin >> x;
8      cout<<"Enter the second number ";
9      cin >> y;
10     cout << (x == y) ? 1:0 ;
11     return 0;
12 }
13

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS C:\Users\Admin\Desktop\Programs\Lessonplan4> cd "c:\Users\Admin\Desktop\Programs\Lessonplan4" & .\Q1.exe
Enter the first number 2
Enter the second number 3
0

PS C:\Users\Admin\Desktop\Programs\Lessonplan4> cd "c:\Users\Admin\Desktop\Programs\Lessonplan4" & .\Q1.exe
Enter the first number 4
Enter the second number 4
1

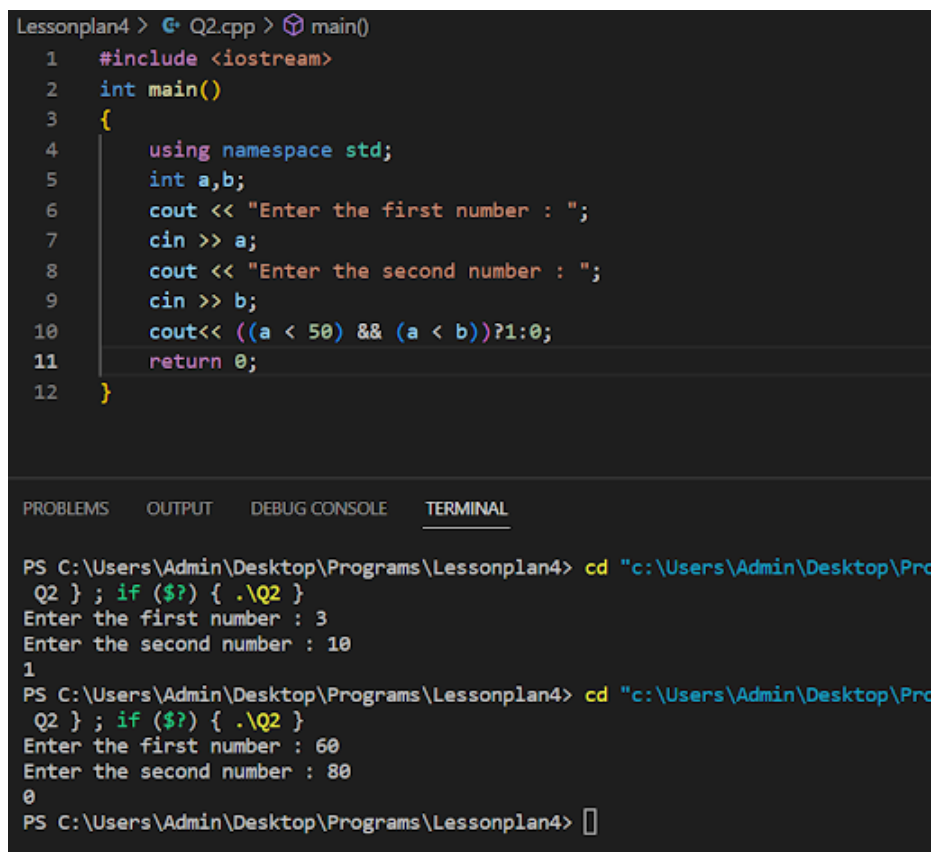
PS C:\Users\Admin\Desktop\Programs\Lessonplan4>
```

Q2 – Write a program to take the values of two variables a and b from the keyboard and then check if both the conditions 'a < 50' and 'a < b' are true.

```
#include <iostream>

using namespace std;

int main()
{
    int a,b;
    cout << "Enter the first number : ";
    cin >> a;
    cout << "Enter the second number : ";
    cin >> b;
    cout<< ((a < 50) && (a < b))?1:0;
    return 0;
}
```



The screenshot shows a C++ IDE with a code editor and a terminal window. The code editor displays the same code as the previous block. The terminal window shows the execution of the program. It prompts the user to enter the first number (3) and the second number (10). The program then outputs 1, indicating that both conditions are true. The terminal also shows the command to compile and run the program using g++.

```
Lessonplan4 > G+ Q2.cpp > main()
1  #include <iostream>
2  int main()
3  {
4      using namespace std;
5      int a,b;
6      cout << "Enter the first number : ";
7      cin >> a;
8      cout << "Enter the second number : ";
9      cin >> b;
10     cout<< ((a < 50) && (a < b))?1:0;
11     return 0;
12 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS C:\Users\Admin\Desktop\Programs\Lessonplan4> cd "c:\Users\Admin\Desktop\Programs\Lessonplan4" & g++ Q2.cpp & if ($?) { .\Q2 }
Enter the first number : 3
Enter the second number : 10
1
PS C:\Users\Admin\Desktop\Programs\Lessonplan4> cd "c:\Users\Admin\Desktop\Programs\Lessonplan4" & g++ Q2.cpp & if ($?) { .\Q2 }
Enter the first number : 60
Enter the second number : 80
0
PS C:\Users\Admin\Desktop\Programs\Lessonplan4>
```

Q3 – There are 45 total pupils in the class, 25 of whom are boys. Write a program to find how many girls received grades "A" if 17 boys made up 80% of the students that received grades "A".

```
#include <iostream>

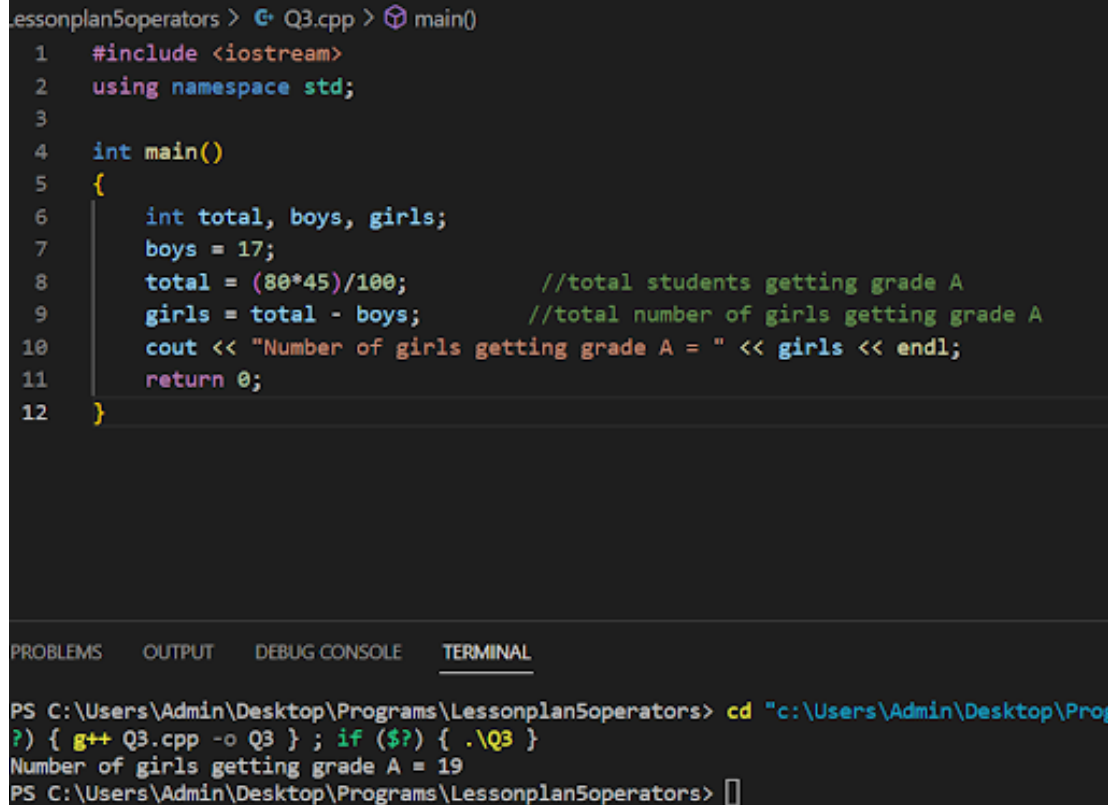
using namespace std;

int main()
{
    int total, boys, girls;

    boys = 17;

    total = (80*45)/100;           //total students getting grade A
    girls = total - boys;         //total number of girls getting grade A
    cout << "Number of girls getting grade A = " << girls << endl;

    return 0;
}
```



```
Lessonplan5operators > G+ Q3.cpp > main()
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      int total, boys, girls;
7      boys = 17;
8      total = (80*45)/100;           //total students getting grade A
9      girls = total - boys;         //total number of girls getting grade A
10     cout << "Number of girls getting grade A = " << girls << endl;
11     return 0;
12 }

PROBLEMS  OUTPUT  DEBUG CONSOLE  TERMINAL

PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> cd "c:\Users\Admin\Desktop\Prog
?) { g++ Q3.cpp -o Q3 } ; if ($?) { .\Q3 }
Number of girls getting grade A = 19
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> |
```

Q4 - Write a program to calculate the sum of the first and the second last digit of a 5 digit number.

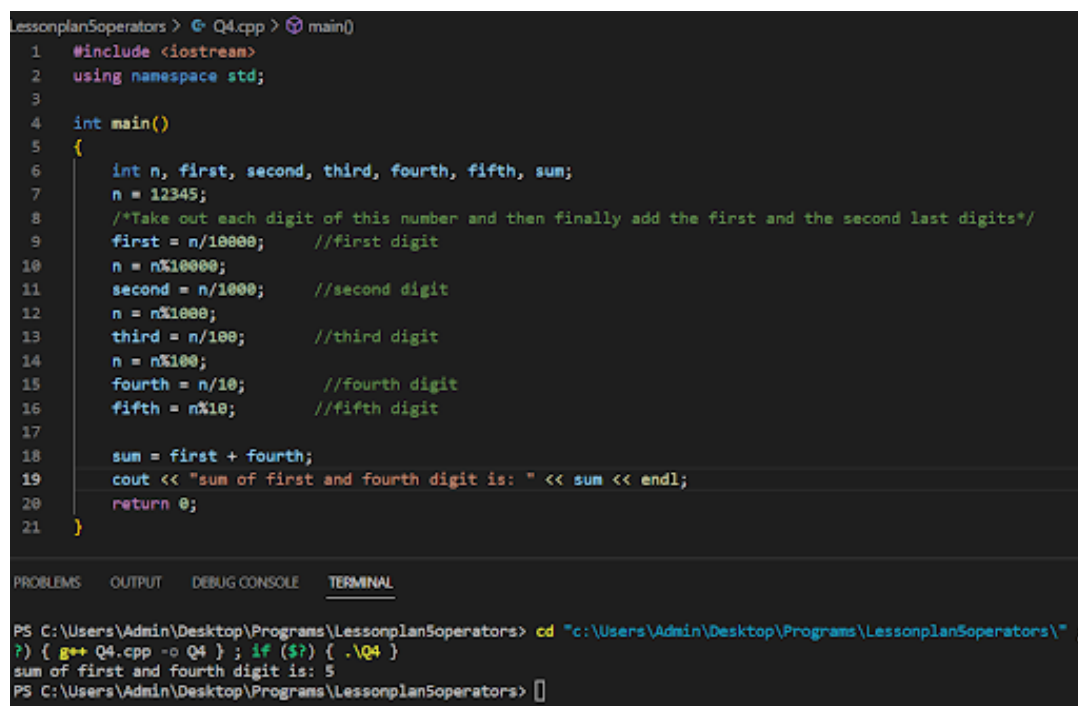
```
#include <iostream>

using namespace std;

int main()
{
    int n, first, second, third, fourth, fifth, sum;
    n = 12345;

    /*Take out each digit of this number and then finally add the first and the second last digits*/
    first = n/10000;    //first digit
    n = n%10000;
    second = n/1000;    //second digit
    n = n%1000;
    third = n/100;      //third digit
    n = n%100;
    fourth = n/10;      //fourth digit
    fifth = n%10;       //fifth digit

    sum = first + fourth;
    cout << "sum of first and fourth digit is: " << sum << endl;
    return 0;
}
```



The screenshot shows a C++ IDE with the following code in a file named Q4.cpp:

```
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      int n, first, second, third, fourth, fifth, sum;
7      n = 12345;
8      /*Take out each digit of this number and then finally add the first and the second last digits*/
9      first = n/10000;    //first digit
10     n = n%10000;
11     second = n/1000;    //second digit
12     n = n%1000;
13     third = n/100;      //third digit
14     n = n%100;
15     fourth = n/10;      //fourth digit
16     fifth = n%10;       //fifth digit
17
18     sum = first + fourth;
19     cout << "sum of first and fourth digit is: " << sum << endl;
20     return 0;
21 }
```

The terminal output shows the execution of the program:

```
PS C:\Users\Admin\Desktop\Programs\LessonplanSoperators> cd "c:\Users\Admin\Desktop\Programs\LessonplanSoperators\" ;
? ) { g++ Q4.cpp -o Q4 } ; if ($?) { .\Q4 }
sum of first and fourth digit is: 5
PS C:\Users\Admin\Desktop\Programs\LessonplanSoperators>
```

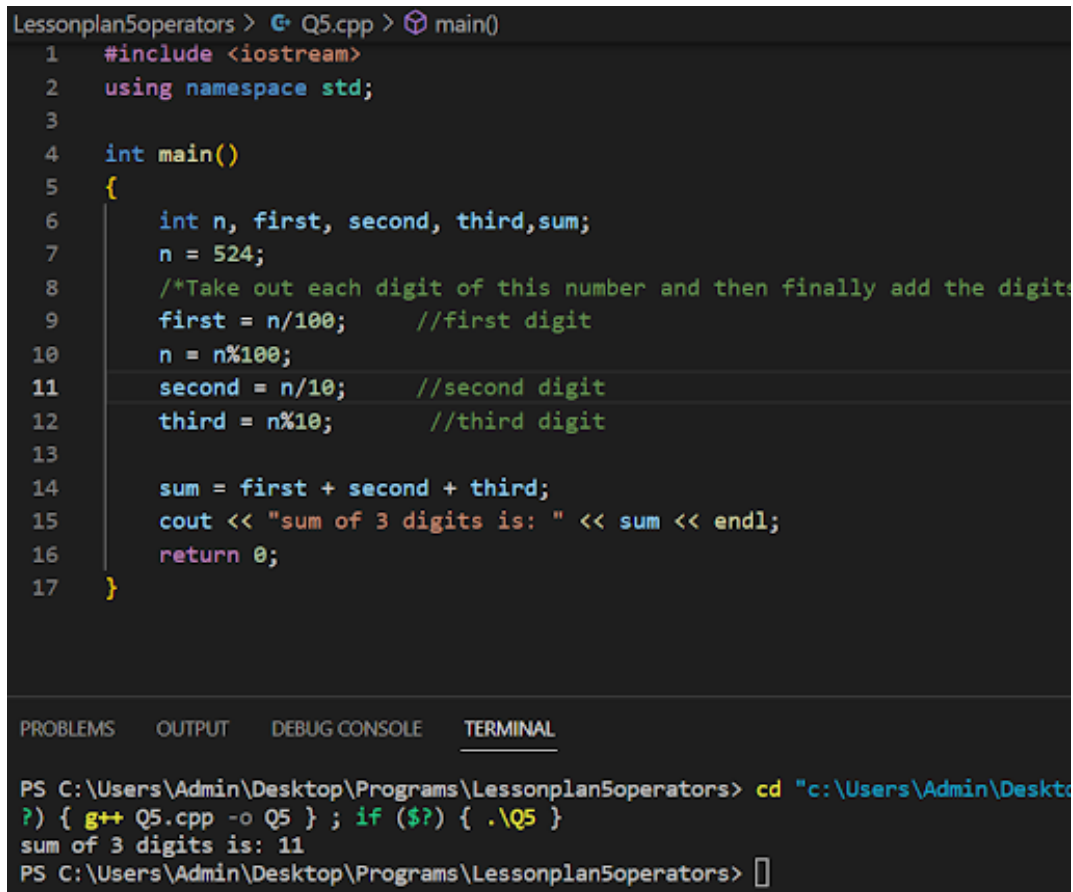
Q5 - write a program to calculate the sum of digits of a 3 digit number.

```
#include <iostream>

using namespace std;

int main()
{
    int n, first, second, third, sum;
    n = 524;
    /*Take out each digit of this number and then finally add the digits*/
    first = n/100;    //first digit
    n = n%100;
    second = n/10;    //second digit
    third = n%10;     //third digit

    sum = first + second + third;
    cout << "sum of 3 digits is: " << sum << endl;
    return 0;
}
```



```
Lessonplan5operators > G+ Q5.cpp > main()
1  #include <iostream>
2  using namespace std;
3
4  int main()
5  {
6      int n, first, second, third, sum;
7      n = 524;
8      /*Take out each digit of this number and then finally add the digits*/
9      first = n/100;    //first digit
10     n = n%100;
11     second = n/10;    //second digit
12     third = n%10;     //third digit
13
14     sum = first + second + third;
15     cout << "sum of 3 digits is: " << sum << endl;
16     return 0;
17 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

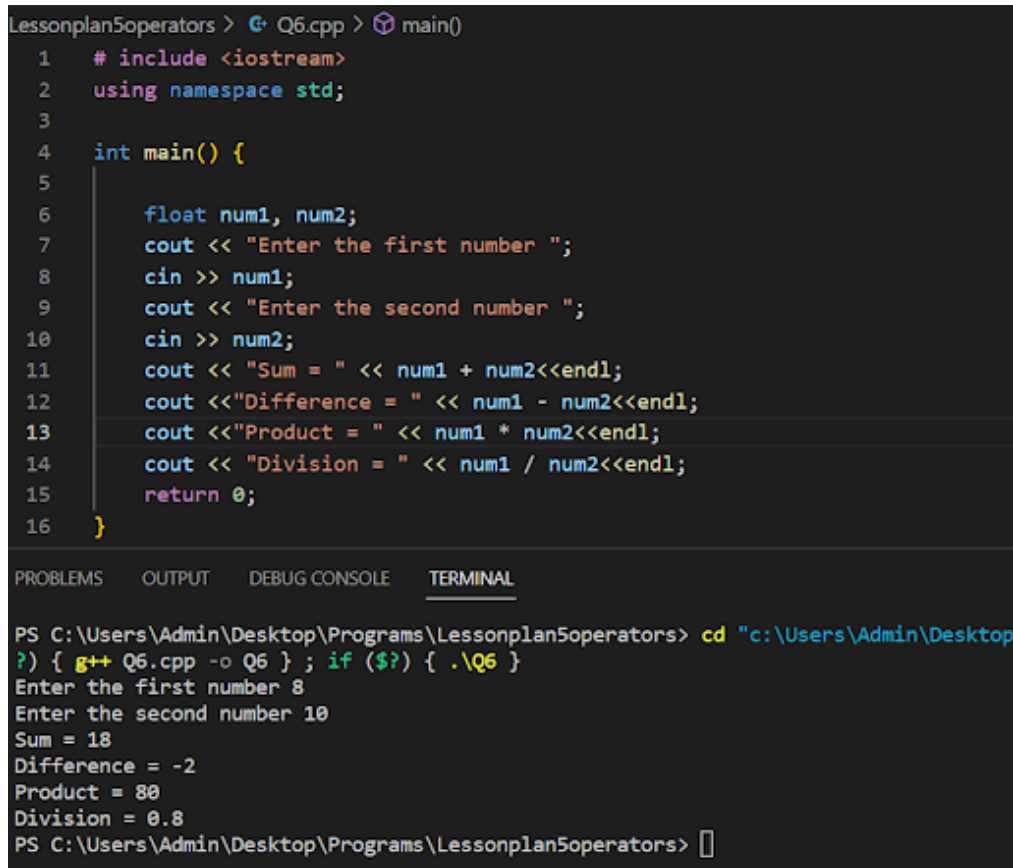
```
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> cd "c:\Users\Admin\Desktop\Programs\Lessonplan5operators"
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> { g++ Q5.cpp -o Q5 } ; if ($?) { .\Q5 }
sum of 3 digits is: 11
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> █
```

Q6 - Design a calculator to perform basic arithmetic operations (+,-,/,*)

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

int main() {

    float num1, num2;
    cout << "Enter the first number ";
    cin >> num1;
    cout << "Enter the second number ";
    cin >> num2;
    cout << "Sum = " << num1 + num2<<endl;
    cout <<"Difference = " << num1 - num2<<endl;
    cout <<"Product = " << num1 * num2<<endl;
    cout << "Division = " << num1 / num2<<endl;
    return 0;
}
```



The screenshot shows a C++ IDE with a dark theme. The top pane displays the C++ code for a calculator. The bottom pane is divided into tabs: PROBLEMS, OUTPUT, DEBUG CONSOLE, and TERMINAL. The TERMINAL tab is active, showing the command prompt output of the program. The user enters 8 for the first number and 10 for the second number. The program then outputs the sum (18), difference (-2), product (80), and division (0.8).

```
Lessonplan5operators > G+ Q6.cpp > main()
1  #include <iostream>
2  using namespace std;
3
4  int main() {
5
6      float num1, num2;
7      cout << "Enter the first number ";
8      cin >> num1;
9      cout << "Enter the second number ";
10     cin >> num2;
11     cout << "Sum = " << num1 + num2<<endl;
12     cout <<"Difference = " << num1 - num2<<endl;
13     cout <<"Product = " << num1 * num2<<endl;
14     cout << "Division = " << num1 / num2<<endl;
15     return 0;
16 }
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL

```
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> cd "c:\Users\Admin\Desktop\
?) { g++ Q6.cpp -o Q6 } ; if ($?) { .\Q6 }
Enter the first number 8
Enter the second number 10
Sum = 18
Difference = -2
Product = 80
Division = 0.8
PS C:\Users\Admin\Desktop\Programs\Lessonplan5operators> 
```