



**NATIONAL UNIVERSITY OF SCIENCES AND  
TECHNOLOGY**

**PROGRAMMING FUNDAMENTALS**  
**LAB ASSIGNMENT# 5**

<b><u>NAME:</u></b>	<b><u>MUHAMMAD IBRAHIM</u></b>
<b><u>CLASS:</u></b>	<b><u>ME-15</u></b>
<b><u>COURSE:</u></b>	<b><u>CS-114</u></b>
<b><u>QALAM ID:</u></b>	<b><u>456219</u></b>

## Q1:

```
#include <iostream>
using namespace std;
int main() {
    int num1, num2, hcf, lcm;
    cout<<"Enter two numbers : ";
    cin>>num1;
    cin>>num2;
    for (int i = 2; i <= num1; ++i) {
        if ((num1%i==0) and
(num2%i==0)) {
            hcf=i;
        }
    }
    lcm=(num1*num2)/hcf;
    cout<<"The LCM = "<<lcm;
    return 0;
}
```

## Q 1 (results):

```
4      int num1, num2, hcf, lcm;
5      cout<<"Enter two numbers : ";
6      cin>>num1;
7      cin>>num2;
8      for (int i = 2; i <= num1; ++i) {
9          if ((num1%i==0) and (num2%i==0)){
main
main.cpp x
:
C:\papers\main.exe
Enter two numbers :52
36
The LCM = 468
Process finished with exit code 0
```

## Q 2:

```
#include <iostream>
using namespace std;
int main() {
    int start, diff, n, result;
    cout<<"Enter the start term: \n";
    cin>>start;
    cout<<"Enter the total number of
terms: \n";
    cin>>n;
    cout<<"Enter the difference between
terms: \n";
    cin>>diff;
    result=((n*(2*(start)+((n)-
1)*(diff))))/2);
    cout<<"The sum = "<<result;
    return 0;
}
```

## Q 2 (results):

```
7      cout<<"Enter the total number of terms: \n";
8      cin>>n;
9      cout<<"Enter the difference between terms: \n";
10     cin>>diff;
```

main.cpp x

:

5

Enter the total number of terms:

10

Enter the difference between terms:

3

The sum = 185

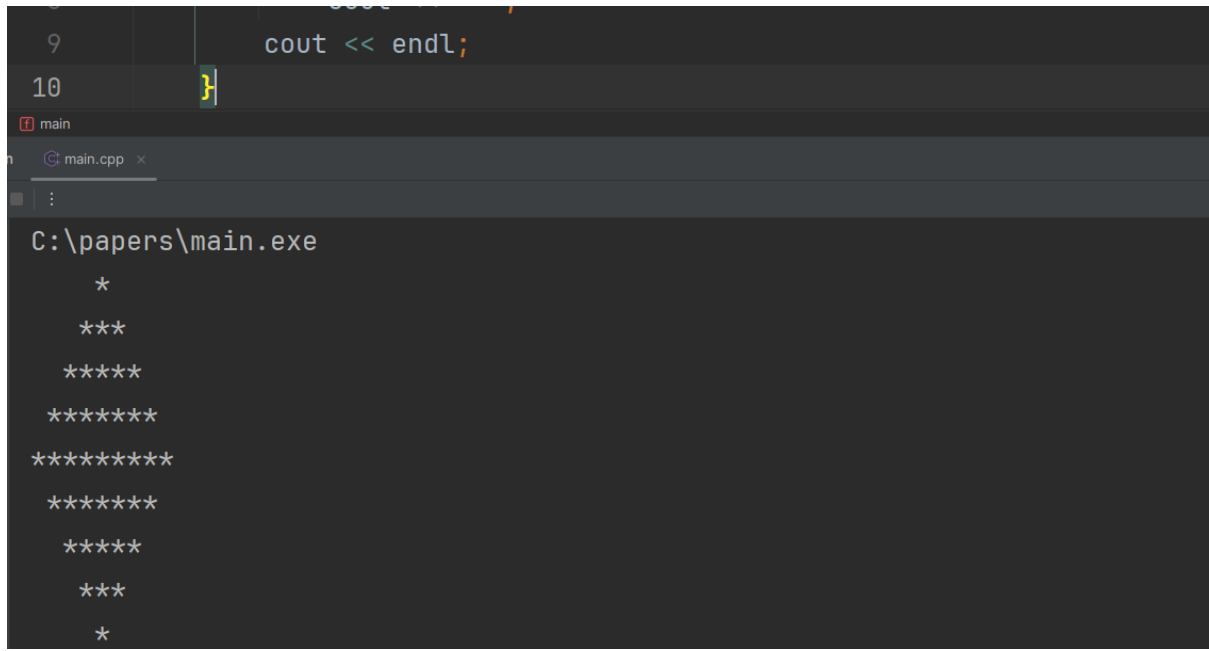
Process finished with exit code 0

### Q 3:

```
#include <iostream>
using namespace std;
int main() {
    for(int i = 1; i <= 5; i++) {
        for(int j = 1; j <= 5 - i; j++)
            cout << " ";
        for(int k = 1; k <= 2*i - 1;
k++)
            cout << "*";
        cout << endl;
    }
    for(int i = 5-1; i >= 1; i--) {
        for(int j = 1; j <= 5 - i; j++)
            cout << " ";
        for(int k = 1; k <= 2*i - 1;
k++)
            cout << "*";
        cout << endl;
    }

    return 0;
}
```

### Q 3 (results):



The screenshot shows a C++ IDE with a dark theme. The top part displays the source code for a program that prints a diamond shape. The code includes a loop that prints a series of asterisks, with the number of asterisks increasing and then decreasing. The output of the program is shown in the bottom pane, displaying a diamond shape of asterisks.

```
9      cout << endl;  
10    }  
main  
main.cpp x  
C:\papers\main.exe  
  *  
 ***  
*****  
*****  
*****  
*****  
*****  
  *  
  *  
  *
```

#### Q4:

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

int main() {
    int num, binary = 0, i = 1,
    remainder;

    cout<<"Enter a decimal number: ";
    cin>>num;
    while (num != 0) {
        remainder = num%2;
        binary = binary + remainder*i;
        num = num/2;
        i = i*10;
    }

    cout<<"The binary number =
"<<binary;

    return 0;
}
```



## Q 4 (results):

```
13         i = i*10;
14     }
15
16     cout<<"The binary number = "<<binary;
17
18     return 0;
19 }
```

main

main.cpp x

:

C:\papers\main.exe  
Enter a decimal number:47  
The binary number = 101111  
Process finished with exit code 0