

```
Q1) #include <iostream>
using namespace std;
int findHCF(int a, int b) {
    while (b != 0) {
        int temp = b;
        b = a % b;
        a = temp;}
    return a; }
int findLCM(int a, int b) {
    int hcf = findHCF(a, b);
    int lcm = (a * b) / hcf;
    return lcm;}
int main() {
    int a, b;
    cout << "Enter the first number: ";
    cin >> a;
    cout << "Enter the second number: ";
    cin >> b;
    int lcm = findLCM(a, b);
    cout << "The LCM of " << a << " and " << b << " is: " << lcm << endl;
    return 0;
}
```

Output

/tmp/GvYr3PBHIk.o

```
Enter the first number: 5
Enter the second number: 6
The LCM of 5 and 6 is: 30
```

```
Q2) #include <iostream>
using namespace std;
int main() {
    int firstTerm, commonDifference, numberOfTerms;
    cout << "Enter the first term of the arithmetic progression: ";
    cin >> firstTerm;
    cout << "Enter the common difference of the arithmetic progression: ";
    cin >> commonDifference;
    cout << "Enter the number of terms in the arithmetic progression: ";
    cin >> numberOfTerms;
    int sum = (numberOfTerms * (2 * firstTerm + (numberOfTerms - 1) * commonDifference)) / 2;
    cout << "The sum is " << sum << endl;
    return 0;
}
```

Output

/tmp/GvYr3PBHIk.o

```
Enter the first term of the arithmetic progression: 2
Enter the common difference of the arithmetic progression: 4
Enter the number of terms in the arithmetic progression: 9
The sum is 162
```

```
Q3) #include <iostream>
using namespace std;
int main() {
    int n;
    cout << "Enter the number of rows for the diamond pattern: ";
    cin >> n;
    int space = n - 1;
    for (int i = 0; i < n; i++) {
        for (int j = 0; j < space; j++) {
            cout << " ";
        }
        for (int j = 0; j <= i; j++) {
            cout << "* ";
        }
        cout << endl;
        space--;
    }
    space = 0;
    for (int i = n; i > 0; i--) {
        for (int j = 0; j < space; j++) {
            cout << " ";
        }
        for (int j = 0; j < i; j++) {
            cout << "* ";
        }
        cout << endl;
        space++;
    }
    return 0;}
```

Output

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Enter the number of rows for the diamond pattern: 5

```
  *
 * *
* * *
* * * *
* * * * *
* * * * *
 * * * *
  * * *
   * *
```

```
Q4) #include <iostream>
using namespace std;
int main() {
    int decimal;
    cout << "enter a decimal number: ";
    cin >> decimal;
    int binary[32];
    int index = 0;
    while (decimal > 0) {
        binary[index] = decimal % 2;
        decimal /= 2;
        index++;
    }
    cout << "The binary representation of the decimal number is: ";
    for (int i = index - 1; i >= 0; i--) {
        cout << binary[i];
    }
    cout << endl;
    return 0;}
```

Output

[Clear](#)

/tmp/GvYr3PBHIk.o

enter a decimal number: 786

The binary representation of the decimal number is: 1100010010