1: Find the cube of a number using Function.

```cpp
#include <iostream>

using namespace std;
// Function to calculate the cube of a number
int cube(int num) {
    return num * num * num;
}

int main() {
    int number;

    // Input a number
    cout << "Enter a number: ";
    cin >> number;

    // Calculate and display the cube
    int result = cube(number);
    cout << "The cube of " << number << " is: " << result
<< endl;

    return 0;
}
```

2: Reverse a number n using Function, Constraints: -5000<=n<=5000

```cpp
#include <iostream>
#include <cmath>

using namespace std;
// Function to reverse a number
int reverseNumber(int n) {
    int reversed = 0;
    bool isNegative = false;

    // Handle negative numbers
    if (n < 0) {
        isNegative = true;
        n = abs(n);
    }

    // Reverse the number
    while (n > 0) {
        reversed = reversed * 10 + n % 10;
        n /= 10;
    }

    // Restore the sign if it was negative
    if (isNegative) {
        reversed = -reversed;
    }
```

```
    return reversed;
}

int main() {
    int number;

    // Input a number
          cout << "Enter a number :";
        cin >> number;


    // Reverse and display the number
    int reversed = reverseNumber(number);
    cout << "Reversed number: " << reversed << endl;

    return 0;
}
```

3: There are three numbers a,b,c. Put the value of a into b, put value of b into c and put value of c into a. Do it using Function.

```
#include <iostream>

using namespace std;

// Function to swap the values of three variables
void swapValues(int& a, int& b, int& c) {
```

```
    int temp = a;
    a = b;
    b = c;
    c = temp;
}

int main() {
    int a, b, c;

    // Input three numbers
    cout << "Enter the value of a: ";
    cin >> a;
    cout << "Enter the value of b: ";
    cin >> b;
    cout << "Enter the value of c: ";
    cin >> c;

    // Call the swapValues function to swap the values of a,
b, and c
    swapValues(a, b, c);

    // Display the swapped values
    cout << "After swapping:\n";
    cout << "a: " << a << endl;
    cout << "b: " << b << endl;
    cout << "c: " << c << endl;

    return 0;
}
```

4: Swap 2 numbers a, b without using extra variables. Range of -10000<=a,b<=100000.

```cpp
#include <iostream>

using namespace std;

int main() {
    int a, b;

    // Input two numbers within the specified range
    cout << "Enter the value of a :";
    cin >> a;
    cout << "Enter the value of b :";
    cin >> b;

    // Perform the swap without using extra variables
    a = a + b;
    b = a - b;
    a = a - b;

    // Display the swapped values
    cout << "After swapping:\n";
    cout << "a: " << a << endl;
    cout << "b: " << b << endl;

    return 0;
}
```

5: Print “Hello Coder Army” n times using Function

```cpp
#include <iostream>

using namespace std;

// Function to print a message n times
void printMessageNTimes(int n) {
    for (int i = 0; i < n; i++) {
        cout << "Hello Coder Army" << endl;
    }
}

int main() {
    int n;

    // Input the number of times to print the message
    cout << "Enter the value of n: ";
    cin >> n;

    // Call the function to print the message n times
    printMessageNTimes(n);

    return 0;
}
```

6.Given two numbers n, r. Find nCr (Combination). Use Function here.

```cpp
#include <iostream>

using namespace std;

// Function to calculate the factorial of a number
long long factorial(int n) {
   if(n==0)
      return 1;
    long long res = 1;
    for (int i = 2; i <= n; i++)
        res = res * i;
    return res;
}

// Function to calculate nCr
long long calculateCombination(int n, int r) {
    if (n < r) {
        return 0; // Invalid input, n should be greater than or equal to r
    }

    long long numerator = factorial(n);
    long long denominator = factorial(r) * factorial(n - r);

    return numerator / denominator;
}
```

```cpp
int main() {
    int n, r;

    // Input values of n and r
    cout << "Enter the value of n: ";
    cin >> n;
    cout << "Enter the value of r: ";
    cin >> r;

    // Calculate and display nCr
    long long nCr = calculateCombination(n, r);
    cout << "C(" << n << ", " << r << ") = " << nCr << endl;

    return 0;
}
```