

Функції

```
int main() 1
{
    // some code
    return 0;
}
```

```
return_type function_name( parameter list )
{
    body of the function 2
}
```

```
void printSomething()
{
    cout << "Hi there!";
}
```

3

```
int main()
{
    printSomething();
    return 0; 4
}
```

```
void printSomething ( int x )
{
    cout << x; 7
}
```

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

```
//Function declaration
void printSomething();
```

```
int main() {
    printSomething();
```

```
    return 0; 6
}
```

```
//Function definition
void printSomething() {
    cout << "Hi there!";
}
```

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

```
void printSomething() {
    cout << "Hi there!";
}
```

```
int main() {
    printSomething();
```

```
    return 0; 5
}
```

```
#include <iostream> 8
using namespace std;
```

```
void printSomething(int x) {
    cout << x;
}
```

```
int main() {
    printSomething(42);
}
```

// Outputs 42

```
int timesTwo ( int x ) {
    return x * 2; 9
}
```

```
int main() {
    cout << timesTwo(8);
    // Outputs 16
```

```
    cout << timesTwo(5);
    // Outputs 10
```

```
    cout << timesTwo(42);
    // Outputs 84 10
}
```

```
int addNumbers(int x, int y) {
    // code goes here
}
```

11

```
int addNumbers(int x, int y, int z, int a) {
    int result = x + y + z + a;
    return result;
}
```

15

```
int addNumbers(int x, int y) {
    int result = x + y;
    return result;
}
```

12

```
int addNumbers(int x, int y) {
    int result = x + y;
    return result;
}
```

```
int main() {
    cout << addNumbers(50, 25);
    // Outputs 75
}
```

13

```
int main() {
    int x = addNumbers(35, 7);
    cout << x;
    // Outputs 42
}
```

14

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

```
int main() {
    cout << rand();
}
```

1

```
int main() {
    for (int x = 1; x <= 10; x++) {
        cout << rand() << endl;
    }
}
```

/* Output:

41
18467
6334
26500
19169
15724
11478
29358
26962
24464
*/

2

```
int main () {
    for ( int x = 1; x <= 10; x ++ ) {
        cout << 1 + (rand ()% 6) << endl ;
    }
}
```

/* Вихід:

6
6
5
5
6
5
1
1
5
3
*/

3

```
int main () {
    srand (98);
```

4

```
    for ( int x = 1; x <= 10; x ++ ) {
        cout << 1 + (rand ()% 6) << endl ;
    }
}
```

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

int main () {
    srand(time(0));

    for (int x = 1; x <= 10; x++) {
        cout << 1 + (rand() % 6) << endl;
    }
}
```

5

```
int sum(int a, int b=42) {
    int result = a + b;
    return (result);
}
```

6

```
int main() {
    int x = 24;
    int y = 36;

    //calling the function with both parameters
    int result = sum(x, y);
    cout << result << endl;
    //Outputs 60

    //calling the function without b
    result = sum(x);
    cout << result << endl;
    //Outputs 66

    return 0;
}
```

7

```
int volume(int l=1, int w=1, int h=1) {
    return l*w*h;
}

int main() {
    cout << volume() << endl;
    cout << volume(5) << endl;
    cout << volume(2, 3) << endl;
    cout << volume(3, 7, 6) << endl;
}

/* Output
1
5
6
126
*/
```

8

Перевантаження

```
void printNumber (int a) {
    cout << a;
}
```

9

```
void printNumber (float a) {
    cout << a;
}
```

10

```
int printName(int a) {}
float printName(int b) {}
double printName(int c) {}
```

12

```
void printNumber(int x) {
    cout << "Prints an integer: " << x << endl;
}

void printNumber(float x) {
    cout << "Prints a float: " << x << endl;
}

int main() {
    int a = 16;
    float b = 54.541;
    printNumber(a);
    printNumber(b);
}

/* Output:
Prints an integer: 16
Prints a float: 54.541
*/
```

11

Рекурсія

$4! = 4 * 3 * 2 * 1 = 24$

```
int factorial(int n) {    1
    if (n==1) {
        return 1;
    }
    else {
        return n * factorial(n-1);
    }
}
```

```
int factorial(int n) {    2
    if (n==1) {
        return 1;
    }
    else {
        return n * factorial(n-1);
    }
}
int main() {
    cout << factorial(5);
}

//Outputs 120
```

Масиви та функції

```
void printArray ( int arr [], int size ) {
    for ( int x = 0; x <size; x ++ ) {
        cout << arr [x];
    }
}    3
```

```
void printArray ( int arr [], int size ) {
    for ( int x = 0; x <size; x ++ ) {
        cout << arr [x] << endl ;
    }
}
int main () {
    int myArr [3] = {42, 33, 88};
    printArray (myArr, 3);
}    4
```

Передача значення

```
void myFunc(int x) {
    x = 100;
}

int main() {
    int var = 20;
    myFunc(var);
    cout << var;
}

// Outputs 20    5
```

Передача за адресою

```
void myFunc(int *x) {
    *x = 100;
}

int main() {
    int var = 20;
    myFunc(&var);
    cout << var;
}

// Outputs 100    6
```