

Number in C ++

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Defining Number in C ++

You have seen the definition of numbers in various examples in the previous chapters. Here is a general example to define diverse numeric types in C ++:

```
#include using namespace std ; int main () { // phan dinh nghia cac so: short
```

When the above code is compiled and executed, it gives the following result:

```
short s la : 10 int i la : 1000 long l la : 1000000 float f la : 230.47 doubl
```

Math function in C ++

Besides the various functions you can create, C ++ also includes some useful math functions for you to use. These functions are available in standard C and C ++ libraries, and are called **built-in** functions. These are functions that can be included in your program and then used.

C ++ has a diverse set of mathematical functions that can be implemented on different types of numbers. The table below lists some of the useful math functions available in C ++.

To use these functions, you need to include the header file .

STTHàm & Purpose1 **double cos (double);**

This function returns the cosine of an angle (form a double)

2 **double sin (double);**

This function returns the sine of an angle (form a double)

3 **double tan (double);**

This function returns the tangent of an angle (form a double)

4 double log (double);

This function returns the natural logarithm (ln) of that number

5 double pow (double, double);

The exponential function with the base is the first double number and the exponent is the second double

6 double hypot (double, double);

If you pass the length of the two sides of the triangle (ie, the double numbers), it will return the length of the hypotenuse

7 double sqrt (double);

Returns the square root of the double

8 int abs (int);

Returns the absolute value of int

9 double fabs (double);

Returns the absolute value of any double

10 double floor (double);

Find the integer number that is less than or equal to the parameter passed to it

The following example illustrates some math functions in C ++:

```
#include <math>
#include <string>
using namespace std ;
int main () { // phan dinh nghia cac
```

Running the above C ++ program will produce the following results:

```
sin(d)      co gia tri la: -0.634939
abs(i)      co gia tri la: 1000
floor(d)    co gia tri la: 200
sqrt(f)     co gia tri la: 15.1812
pow( d, 2)  co gia tri la: 40149.7
```

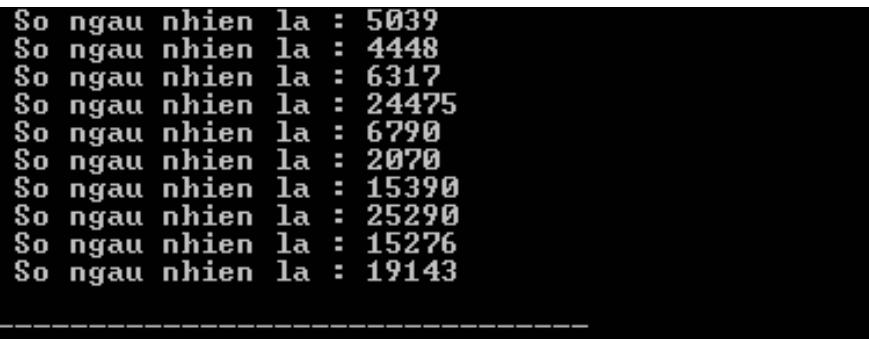
Random Number in C ++

In some cases, you want to create a random number. There are two functions that can help you do this. The first function is rand () defined in the library: will only return a pseudo random number, which may not change through the program runs. To solve this anomaly, we will use the srand () function in the library.

The following example will generate some random numbers in C++. For example, use the `time ()` function to get the number of seconds on your System time. The value returned from `time` is through `scrand`, you note that the random number is generated before the `rand` call.

```
#include #include #include using namespace std ; int main () { int i , j ;
```

Running the above C++ program will produce the following results:



```
So ngau nhien la : 5039  
So ngau nhien la : 4448  
So ngau nhien la : 6317  
So ngau nhien la : 24475  
So ngau nhien la : 6790  
So ngau nhien la : 2070  
So ngau nhien la : 15390  
So ngau nhien la : 25290  
So ngau nhien la : 15276  
So ngau nhien la : 19143
```

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