Probably no subject causes as much angst for students as function arguments.

Let's review a few key points:

- Functions appear in programs in three ways:
  - To use functions we call them.
  - To create functions we implement them.
  - Just like variables, functions have a declaration before they can be used (called).
- Functions may or may not return a value.
- Functions may or may not have arguments.

Below is a very simple program with just one function.

We're going to run the code. Watch carefully what happens in memory.

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

double hypot(double x, double y); // computes the hypotenuse of a right triangle

int main(){
    double side1; // The two sides of the triangle adjacent to the right angle
double side2;
    cout << "Please enter, separated by a space, the lengths of the "
    << "two adjacent sides of the right triangle: ";
cin >> side1 >> side2;
    cout << "The hypotenuse is: " << hypot(side1, side2) << endl;
    return 0;
}

double hypot(double x, double y) {
    return sqrt(x*x + y*y);
}
```

We used different names for the parameters (arguments) in the declaration than in the call.

We could have used the same names. Here's the same program, simply with same names. Run it and again watch carefully what happens in memory.

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

double hypot(double side1, double side2); // computes the hypotenuse of a right triangle

int main(){
    double side1; // The two sides of the triangle adjacent to the right angle
double side2;
    cout << "Please enter, separated by a space, the lengths of the "
    << "two adjacent sides of the right triangle: ";
cin >> side1 >> side2;
    cout << "The hypotenuse is: " << hypot(side1, side2) << endl;
    return 0;
}

double hypot(double side1, double side2) {
    return sqrt(side1*side1 + side2*side2);
}
```

Here's the original program with two function calls in it.

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

double hypot(double x, double y); // computes the hypotenuse of a right triangle

int main(){
    double side1; // The two sides of the triangle adjacent to the right angle
double side2;
    cout << "Please enter, separated by a space, the lengths of the "
    << "two adjacent sides of the right triangle: ";
cin >> side1 >> side2;
    cout << "The hypotenuse is: " << hypot(side1, side2) << endl;
    return 0;
}

double hypot(double x, double y) {
    return sqrt(x*x + y*y);
}
```

http://www.engr.mun.ca/~mpbl/teaching/2420/lectures/functions/functions_arguments.htm  2004.03.24
cout << "The hypotenuse is: " << hypot(side1, side2) << endl;
cout << "The hypotenuse of a triangle whose sides are one longer is: " <<
    hypot(side1 + 1.0, side2 + 1.0) << endl;
return 0;
}

double hypot(double x, double y) {
    return sqrt(x*x + y*y);
}