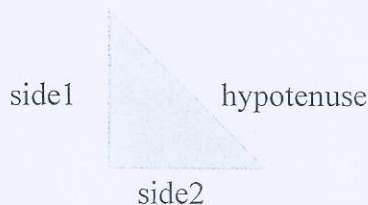


D. Please rewrite the following program by using **while** and **do/while** control structures. (20%)

```
// Factorial program.
#include <iostream>
using namespace std;
int main()
{
    int factorial = 1; // current factorial value
    // display table headers
    cout << "x\tx!\n";
    // display factorial of numbers 1-5
    for ( int i = 1; i <= 5; i++ )
    {
        factorial *= i; // i!
        // display factorial value in table
        cout << i << "\t" << factorial << "\n";
    } // end for
    cout << endl;
} // end main
```

E. Define a function **hypotenuse** that calculates the hypotenuse of a right triangle when the other two sides are given. The function should take two double arguments and return the hypotenuse as a double. Use this function in the main program to determine the hypotenuse for each of the triangles shown below. Run the program like: (15%)

Enter 2 sides of right triangle: 3.0 4.0
Hypotenuse: 5.0



F. Find the errors in each of the following code segments and explain the error and how to correct them. (15%)

- a.

```
x = 1;
while ( x <= 10 );
{
    x++;
}
```
- b.

```
for ( y = .1; y != 1.0; y += .1 )
    cout << y << endl;
```

c. switch (n)

```
{
    case 1:
        cout << "The number is 1" << endl;
        break;
    case 2:
        cout << "The number is 2" << endl;
        break;
    default:
        cout << "The number is not 1 or 2" << endl;
        break;
}
```

一個精神病院的護士看到一個病人在寫信非常好
奇想去偷瞄，可是病人不給他看，
護士忍不住了就問"給誰寫信啊？"
病人回答"寫給我自己啊！"
護士好奇心更盛了 怎會有人寫信給自己咧？
於是又問"寫些什麼啊？"
病人說"你神經病啊！我還沒收到，我怎麼知道！"
(沒有笑就沒分數)

Final Exercise 5.28

Due day : 2016/01/25 midnight.