Due Date: 25 March 2011, midnight

Write a C program that will:

- **input two integers** (x, y).
- **calculate** and **output** the C value according to the following formula

\[
C = \left(1 - 1/x! + 1/(x+1)! - 1/(x+2)! + \ldots - 1/(x+8)\right) \ast y^2 / \left(\sum_{i=x}^{y} \text{prime numbers}\right)
\]

- continue doing this process until ‘Q’ is inputted by the user
- have 4 functions named as **func1**, **func2**, **func3**, **func4**

Explanation for functions:

- **func1**: receives a integer number, calculates and **returns** factorial of this number **under function name**
- **func2**: receives two integer values **x** and **y**, calculates the nominator of C formula by calling the required functions ,and returns the calculation result **through a parameter**
- **func3**: receives an integer , **returns 1** if it is a prime number or **returns 0** if number is not a prime number
- **func4**: receives two integer numbers **x** and **y**,finds the **summation of the prime numbers** between **x** and **y** which is the denominator part of C formula. It will return the result **through a parameter**.

Sample Run:

```
Enter x and y values:1 8
Calculation result is:1.308015

Enter q!Q to quit:a
Enter x and y values:10 12
Calculation result is:4.965516

Enter q!Q to quit:b
Enter x and y values:1 5
Calculation result is:0.229924

Enter q!Q to quit:q
Bye!!!?_`
```

**NOTES:**
Your program should
- include comments to explain your program.
- be easy to follow.
- work for all possible inputs.
- include proper input and output messages.

Mail your homework to ceng114@cankaya.edu.tr. Don’t forget to write your name.

Late homeworks will be graded out of \(10 - \frac{d^2}{2}\) where d is the number of late days.