Reminder: This is a programming project, and work on this assignment should be done individually. Assistance from other students is limited to questions about specific issues as noted in the syllabus.

The value of sin(x) and cos(x) can be written as infinite series as:

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \cdots$$

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \cdots$$

In each case x is a real number in radians.

Write a program in C# which will prompt the user for a value of x in degrees and an accuracy number. Using the equations above calculate and print the value of sin(x) and cos(x) to the required accuracy. Use $\pi = 3.141592653589793$

If the accuracy number entered AND the value of x entered are both zero, your program should terminate. Otherwise, it should continue running and issue another prompt for input values.

If the accuracy number is less than $10^{-9}$ you should set the accuracy to $10^{-9}$ and issue a message that you have done so.

Here are typical results from a program that runs correctly.

```
Enter a value for x... 30
Enter a value for the accuracy... 0.001
Sin of 30.000000000 is 0.500002133
Cos of 30.000000000 is 0.866025264

Enter a value for x... 45
Enter a value for the accuracy... 0.0000001
Accuracy reset to 0.000001
Sin of 45.000000000 is 0.707106783
Cos of 45.000000000 is 0.707106781

Enter a value for x... 0
Enter a value for the accuracy... 0
Press any key to continue . . .
```

Your program must contain *at least* five functions: one to calculate factorials, one to input the value of x and the accuracy, one to print the sin value, one to print the cosine value, and one to explain the program and how it works.

Turn in a zipped project file.  Name your zipped file Asn04XXX.zip where XXX are your three initials.  Upload your zipped project file to
\\cecsfp01\users\everyone\Engr123