HOMEWORK 6

CS 125

due at 11:45pm (classtime) on Tueday, September 15

Write a Python *function* to solve each of the following problems. Plan each function on paper before you implement it in code.

Prepare your solutions in a single Python file. Use comments to clearly state the problem number for each of your solutions. Provide test cases to show that your functions produce the desired output. Upload your file to the Homework 6 assignment on Moodle.

1. **Temperature conversion**: Write a function that uses a loop to print a temperature conversion table for degrees Celsius and degrees Fahrenheit. Your program should print a row for each multiple of 5 degrees Celsius from 0 to 100. Each row should show the degrees Celsius and the corresponding temperature in degrees Fahrenheit. The formula for converting from C degrees Celsius to F degrees Fahrenheit is:

$$F = \frac{9}{5}C + 32.$$

2. **Triangular numbers:** The triangular numbers are the sequence 1, 3, 6, 10, 15, 21, … (Do you see the pattern?) Write a function `printTriangularNumbers(n)` that prints out the first n triangular numbers.

3. **Divisibility:** Write a function that asks the user for a sequence of numbers, continuing to input numbers until the user enters a zero. After that, your program prints the average of the numbers that the user entered.

   Here is a sample of what your program should look like (input in bold):

```
Enter a number (or 0 to quit): 8
Enter a number (or 0 to quit): 4
Enter a number (or 0 to quit): 6
Enter a number (or 0 to quit): 0
The average of your numbers is 6.0
```

4. **Largest factor:** Write a function `largestFactor(n)` that accepts an integer n greater than 1. Your function should then find and return the largest proper factor of that number.

   (Recall that a factor divides the given number with remainder zero. For example, 6 is a factor of 24, but 7 is not a factor of 24. A proper factor of an integer n is a factor that is not equal to n.)