Assignment 1

William F. Henderson III was a brilliant computer scientist who was taken from us all too soon. He had trouble falling asleep because there were too many thoughts running through his head. The everyday method of counting sheep didn't work for him because it was too easy, leaving him too much time for other thoughts. So, he invented the following method which required more calculation.

Start with the number 1000. Subtract 1 from it repeatedly (i.e., 999, 998, etc.) until you get a number ending in 0. (That will happen at 990.) Then switch to subtracting 2's, i.e., 988, 986, etc., until you again get a number ending in 0. Then switch to subtracting 3's. Every time you get a number ending in 0, increment the number you are subtracting. Stop when the next subtraction would cause the number to go negative.

Implement the following adaptation of his method:

Print the starting number. Also, each time you get a number ending in 0 and at the end of the run, print the number you were subtracting, the current value, and the number of times the number you were subtracting has been used. Also represent the latter as a sequence of asterisks. (He would say the number to himself, but of course we have to print it.)

Finally, at the end of the run, show how many numbers were spoken and the average number per increment. Then show the number of numbers passed through and the average per increment.

Make sure that the numbers in each column are right justified.

In your implementation, get the starting number (e.g., 1000) from the command line. If no parameter is given on the command line, use 1000 as the default.

Sample output:
Sample output with input 20:

```
 decrement     current       count
                     20
         1           10          10    **********
         2            0           5    *****

There were 15 numbers spoken with 2 different increments.
Average cycles/incr = 7.50

There were 20 numbers passed by with 2 different increments.
Average numbers/incr = 10.00
```

Sample output with input 21:

```
 decrement     current       count
                     21
         1           20           1    *
         2           10           5    *****
         3            1           3    ***

There were 9 numbers spoken with 3 different increments.
```

```
average cycles/incr = 3.00

There were 20 numbers passed by with 3 different increments.
Average numbers/incr = 6.67
```