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Follow the same guidelines as in Homework 4 for this assignment.

- 1) (3 pts) The geometric mean of a series of  $n$  positive values is defined as

$$x_G = \sqrt[n]{x_1 \cdot x_2 \cdots x_n}.$$

Write a script that will ask the user to input a series of positive values and computes their geometric mean. Test your code using the values 1.3, 2.4, 5.9, 8.4, 6.1, 7.6.

- 2) (5 pts) In class we wrote a script that will compute  $n!$  given the value of  $n$ . Using this as a starting point, write a script that will ask the user to input values of  $n$  and  $k$  and computes the binomial coefficient

$$C(n, k) = \binom{n}{k} = \frac{n!}{k!(n-k)!}, \quad n \geq k.$$

Use your code to compute the values of  $C(3, 1)$ ,  $C(5, 3)$ ,  $C(14, 5)$ , and  $C(10, 0)$ .

- 3) (5 pts) Write a script that will ask the user to input a series of numbers. Your script should output the following:
- The number of values that are integers.
  - The number of values that are double precision.
  - The number of values that are even.
  - The number of values that are odd.
  - The number of values that are positive.
  - The number of values that are negative.
  - The number of values that are zero.

Note that you have most of the individual pieces already written from previous assignments. Test your code using the set of values

$$1, -4.5, 0, 6, 8.7, -2, 3.4, 0, -5, -2.3, 4.7.$$