## Additional Practice Problems:

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Write a program that takes in an arbitrary amount of masses and corresponding volumes from a user and calculates the density for each individual pair. The output should be a list of densities. You should consider input errors and how to account for any problem a user might provide. For your use: Density = Mass / Volume

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Write a program to solve a 4-digit combination lock. Program must set up a 'lock' with a 4-integer password (list of lists), and write a program to 'solve' the combination.

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Write a program that computes the following, outputting all results with a descriptive sentence:

a. Calculates and outputs the area and the perimeter (circumference) for a circle with radius 2.59
b. Calculates and outputs the length of the side of a square that has the same area as that circle
c. Calculates and outputs the length of the side of a square that has the same perimeter as that circle.

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Write a program that does the following:

a. asks for a user's name and score on three exams
b. calculates an average exam score
c. outputs a personalized message (i.e., using their name) giving the average of their test scores

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Write a program that asks for a user's homework score, exam score, and whether they completed an outside project. Then have the program return the user's course letter grade.

- The basic grade is determined as 60% from exams, 40% from homework; grades range from 0 to 100.
- If the student completes an outside project, they receive an extra 5 points. The student must complete the outside project to receive an "A".
- Assume an "A" score is 90+, a "B" if in the 80s, a "C" if in the 70s, a "D" if in the 60s, and an "F" is less than 60.

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Imagine you are writing a program to find and print the sum of two fractions. Each fraction will be read in from the user as an integer numerator and an integer denominator.

a. Write a set of variables you expect to use in your program. If it is not obvious from the name of the variable, note what the variable will store.
b. Write a brief set of steps you would follow in your program.
c. Write an appropriate set of test cases that you would use to test your program, to ensure it is working reasonably.

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Write a program that asks a user for an integer value, and computes the double factorial of that number. The program should repeat until the user enters a non-positive number other than -1.

Mathematically, a double factorial is calculated as follows:

If n is even, then: n!! = n*(n-2)*(n-4)*(n-6)*...*(4)*(2)

If n is odd, then: n!! = n*(n-2)*(n-4)*(n-6)*...*(3)*(1)

By convention, if n = 0 or n = -1, then n!! = 1.

Examples:

7!! = 1*3*5*7 = 105.

8!! = 2*4*6*8 = 384.