CS 1301
Pair Homework 2 – Conversions/Tip Calculator
Due: Monday, January 30th, before 11:55 PM
Out of 100 points
Files to submit: 1. hw2.py

You will be writing several functions, but they will all be saved in one file: hw2.py. Please save all of the functions in this one file or you will lose points. This is a pair programming problem! You are expected to work with the person you have been pared with in class, and you are both responsible for submitting the exact same code to T-Square. Your team may collaborate with other students in this class. Collaboration means talking through problems, assisting with debugging, explaining a concept, etc. You should not exchange code or write code for other pairs. Collaboration at a reasonable level will not result in substantially similar code. For pair programming assignments, you and your partner should turn in identical assignments.

For Help:
- TA Helpdesk – Schedule posted on class website.
- Email TAs
Notes:
- **Don't forget to include the required comments and collaboration statement (as outlined on the course syllabus).**
- **Do not wait until the last minute** to do this assignment in case you run into problems.
- If you find a significant error in the homework assignment, please let a TA know immediately.

Part 1 – Conversions (45 pts)

Section A – Length (15 pts)

For part A, you will write a function called **length()** which takes in a value in meters and coverts that value into arshins. For reference, there are 1.406 arshins (yes, that's a real unit!) in 1 meter. Please **return** the value. Save this function in your **hw2.py** file as well.

Sample Output:
>>> length(3)
4.218
>>> length(9)
12.654

Section B – Currency (15 pts)
In this section, you will need to convert currencies. The exchange rate is 31.74 Thai Baht per US Dollar. Write a function called **currency()** that takes in an amount of Baht and converts it to US Dollars. Since we want to know what we're dealing with, **print** the value out with a nice little sentence explaining the conversion that just happened. Please print the values to 2 decimal places. See

the sample output below. Save this function in your **hw2.py** file as well.

Sample Output:
>>> currency(50)
50.00 Baht is worth 1.58 US Dollars.
>>> currency(25)
25.00 Baht is worth 0.79 US Dollars.

Section C – Pizza Consumption (15 pts)

The TAs are busy grading your first test, but first they need to figure out how much pizza to buy. Write a function called **pizza()** that takes in 3 parameters: TAs, instructors, and head_TAs. Each TA will eat 3 slices of pizza, each instructors will eat 5 slices of pizza, and each head TA will eat 8 slices of pizza. Print the appropriate value with the message shown below and save this function in your **hw2.py** file as well.

Sample Output:
>>> pizza(1,1,1)
You will need 16 slices of pizza.
>>> pizza(5,1,2)
You will need 36 slices of pizza.

Part 2 – It's Math Time! (55 points)

So you've been up all night writing Python code with your friends just for fun. Well, coding always makes one tired, so you decide to go grab some food. It being nearly 3 am, the only place that is open is the great institution of Waffle House. However, you're spent from a night of constant awesomeness, and realize you just won't be able to compute the appropriate tip amount for the waitress in your head. Fortunately, though, the part of your brain that writes Python functions is still super focused and ready to go, so you decide to whip out your laptop and write a Python program to handle the tip calculations for you. (Yes, you brought your laptop to Waffle Hours with you. Why wouldn't you?)
Your program will also need to be able to handle tax.
-Write a function called **tipCalculator()** that prompts the user for the bill amount and the percent that they want to leave for the tip. **Do not include the dollar sign or percent sign when entering the numbers!**
-Calculate the tax (**always 7.8%**), the tip (percent of bill amount, **excluding** tax), and the total bill.
-Remember to divide the percentages by 100 when multiplying. Here, it is important to remember how Python handles division.
-You are expected to round the your tip to the next dollar by use of the math.ceil()
function. Basically, math.ceil() always rounds the number up to the next integer. **Do not forget to import math when using functions from the math module!**
For example:
>>> math.ceil(4.51)
5.0
>>> math.ceil(6.7)
7.0
>>> math.ceil(3.2)
4.0

-Round the tax to the nearest cent by use of string formatting. Remember, you're working with money, so how are dollar amounts usually presented?

Sample output:
>>> tipCalculator()
How much is the bill before tax and tip? 7.80
What percent tip do you want to leave? 15
Tax is $0.61
Tip is $2.00
Total is $10.41

Grading Rubric
Part 1 – Conversions – 45 points

Part A –	15 points
Function named correctly (length) –	5 points
Performs correct conversion –	5 points
Returns the value –	5 points
Part B –	15 points
Function named correctly (currency) –	5 points
Performs correct conversion –	5 points
Print statement containing values to 2 decimal points –	5 points
Part C –	15 points
Function named correctly (pizza) –	5 points
Performs correct math –	5 points
Prints value with appropriate message –	5 points

Part 2 – Tip Calculator – 55 points

Gets input from user –	5 points
Input is cast correctly –	7 points
Tax is calculated correctly –	7 points
Tip is calculated correctly –	7 points
Total is calculated correctly –	7 points
Uses math.ceil() as needed –	7 points
Outputs are correct –	15 points
	(5 each for tax, tip, and total)

For a grand total of 100 possible points.