Problem Set – More on Functions

1. Prompt the user to repeatedly to do the program input (Yes or No)). If they respond Yes, go into the loop and prompt them for last name, month and sales. Write a function to compute next month's forecast. Pass to the function month and sales. Determine the forecast percent (see below) and compute next month's sales to be sales x (1+forecast percent). Return next month's sales and display the value.

Month	Forecast Percent
Jan, Feb, Mar	0.10
Apr, May, Jun	0.15
Jul, Aug, Sep	0.20
Oct, Nov, Dec	0.25

Input	Process	Output
Arguments: month, sales	Function: compute next month's forecast	Return: next month's forecast
Prompt to run the program Loop: last name, month and sales from user	Compute next month's sale	Next month's sales and display the value

2. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for length, width, and height of a room. Write a function to compute the wall square footage of the room. The function should receive the length, width and height of the room and return wall square footage 2 x length x height (2 of the walls) + 2 x width x height (the other 2 walls). A gallon of paint covers 50 square feet. Compute the number of gallons needed to paint the walls of the room (square footage of the room / 50). Display the number of gallons needed.

   Note: the computation can be any algebraic equivalent as long as the computation is correct.

   Bonus: Add the following
   a. A function to compute the area of the ceiling or floor (length x width).
   b. Use the function to get the area of the ceiling or wall.
   c. Determine the number of gallons of ceiling paint or floor varnish
   d. Display the number of gallons for the ceiling or floor.

Input	Process	Output
Arguments: length, width and height	Function: compute wall square footage	Return: wall square footage
Prompt to run the program Loop: length, width and height	Compute number of gallons needed to paint the walls of the room	Number of gallons needed
Bonus:		
Arguments: length and width of ceiling or floor	Function: compute the area of ceiling or floor	Return: Area of ceiling or floor
lLength and width of ceiling or floor from user	Determine the number of gallons of ceiling paint or floor varnish	Number of gallons for ceiling or floor

3. Prompt the user to repeatedly to do the program (input (Yes or No)). If they response Yes go into the loop and prompt the user for make, model, electric vehicle code (Y or N) and MSRP (sticker price) of an automobile. Write a function to compute the out the door price. Pass to the function the MSRP, make, model and electric vehicle code. Determine the percent off the MSRP then compute the new MSRP and finally add 7% sales tax to the total. Return and display the total. Also sum all MSRP's and sum of all sales price of the cars (MSRP – discount + tax).

To determine percent off MSRP	Percent off MSRP
Honda Accord	0.10
Toyota Rav4	0.15
All electric vehicles	0.30
All other vehicles	0.05

Input	Process	Output
Arguments: MSRP, make, model and EV (y/n)	Function: compute percent off the MSRP	Return: new MSRP
Prompt to run the program Loop: make, model, electric vehicle (y/n) and MSRP	Compute new MSRP + sales tax Sum of all MSRPs Sum of all sales price	Total Sum of MSRPs and total sales

4. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for last name and miles from downtown Chicago. Write a function to compute the train ticket price. Pass to the function the miles from downtown Chicago and determine the ticket price. Return the ticket price. Sum price of all tickets.

Miles from Downtown Chicago	Ticket Price
30 or more	$12
20 to 29	$10
10 to 19	$8
All others	$5

Input	Process	Output
Arguments: miles from downtown Chicago	Function: compute train ticket price	Return: train ticket price
Prompt to run the program Loop: last name, miles from downtown Chicago	Determine ticket price Sum of all ticket prices	Ticket price Sum of all ticket prices

5. Prompt the user to repeatedly to do the program input (Yes or No)). If they response Yes go into the loop and prompt the user for county and market value of a home. Write a function to compute the assessed value. Pass to the function the county and market value. The function will determine the assessed value percent then compute and return the assessed value. (Multiply the market value by assessed value percent. Sum and display all market values and assessed values.

County	Assessed Value Percent
Cook	0.90
DuPage	0.80
McHenry	0.75
Kane	0.60
All others	0.70

Input	Process	Output
Arguments: county, market value	Function: compute assessed value percent	Return: assessed value
Prompt to run the program Loop: county, market value	Determine assessed value Sum all market values Sum all assessed values	Assessed values Sum all market values and sum all assessed values