Question #1

In Python, sub-programs are called **functions**. Each function in a program should do one and only one subtask. Data get passed back and forth between the "main" section of the program and various functions. The main part may pass data to a function, receive new data from a function, or both. Data received from a function could in turn be passed on to another function. You can imagine data flowing along the connecting lines in the structure chart. That's how we "empower these subprograms to work together."

Since most of the trigonometric functions require that the angle is expressed in radians. In this assignment, we will create our own functions in order to convert between radians and degrees.

It is quite easy to convert from radians to degrees or from degrees to radians.

We have that:

$$2\pi[radians] = 360[degrees]$$

This gives:

$$d[degrees] = r[radians] \times (\frac{180}{\pi})$$

and

$$r[radians] = d[degrees] \times (\frac{\pi}{180})$$

Create two functions that convert from radians to degrees (r2d(x)) and from degrees to radians (d2r(x)) respectively. Save your functions into a separate Python file and import the file when you write your main program. Test the functions thoroughly to make sure that they work as expected.

Question #2

Given a complete program below, rewrite the program using functions. Create at least two functions and save your functions into a file that you have created in Question #1. Import the file when you write your main program.

```
# This program calculates retail prices.
mark_up = 2.5  # The markup percentage
another = 'y'  # Variable to control the loop.

# Process one or more items.
while another == 'y' or another == 'Y':
    # Get the item's wholesale cost.
    wholesale = float(input("Enter the item's wholesale cost: "))
```

```
# Validate the wholesale cost.
while wholesale < 0:
    print('ERROR: the cost cannot be negative.')
    wholesale = float(input('Enter the correct wholesale cost:'))

# Calculate the retail price.
retail = wholesale * mark_up

# Display the retail price.
print('Retail price: $', format(retail, ',.2f'))

# Do this again?
another = input('Do you have another item? (Enter y for yes): ')
```

Write a Report Summary

Using Microsoft Word or any text editor, answer the following questions. Please describe your answers, do not just say yes or no.

1. Did you complete your assignment and did your program run without errors?
2. Did your program produce the correct result?
3. Did you test your program thoroughly?
4. How much time did you spend completing your assignment?
5. Did you write the program yourself? Did you get any help from anyone?
6. How did you resolve the issues when you encountered obstacles to completing your program? Did you use Google or other resources to get help? Describe how Google or other resources was abled or not able to assist you.
7. What did you learn from doing this assignment?
8. Any other information you would like to share with your instructor?

What to submit

- Submit all your Python program files and your program output
- Submit your learning report summary