Lab 4

Questions

1. What will this code output? (First predict, then check!)
```
def greet():
  print("Hello!")

print("What's up?")
```
Access this code here

2. Consider the following program:
```
def print_greetings(name):
  print("Hello, ",name)

print_greetings("Pam")
```
Access this code here

   (a) What is the argument to the function call? What is the function parameter?

   (b) Modify the program to create a variable, `name = "Pam"`, and send this variable as the argument to the `print_greetings` function. Does sending the argument as a variable affect your program?

   (c) Modify the program once more. Remove the `name = "Pam"` statement, and add a `person = "Pam"`. Now pass `person` as the argument. Does it matter that the argument variable (`person`) has a different name than the function parameter (`name`)?

3. The programmer was expecting this program to print 200. What does it print instead?
```
def proc(x):
  x = 2 * x * x

def main():
  num = 10
  proc(num)
  print(num)

main()
```
Access this code here

4. What will be printed by the following program? (First predict, then check!)
```
def addnumbers(num1,num2):
  print("Sum is:  ", num1 + num2)

addnumbers(2,3)
```

5. What will be printed by the following program? (First predict, then check!)
```
def addnumbers(num1,num2):
  print("Sum is:  ", num1 + num2)

addnumbers(5,7,2)
```

6. What will be printed by the following program? (First predict, then check!)
```
def addnumbers(num1,num2):
  print("Sum is:  ", num1 + num2)

addnumbers(4)
```

7. What will this program print? (First predict, then check!)

```
def proc():
  name = "Toby"

name = "Taylor"
proc()
print(name)
```

Access this code here

Writing Programs

1. Write a program to print the value of gravitational acceleration g on any planet, given values for the planet's mass and radius. Use a function to perform the calculation. The user should input the mass and radius, and then these values should be passed as arguments to the function.

$$g = \frac{GM}{R^2}$$

Where G is Newton's constant: $G \approx 6.7 \times 10^{-11}$ N·m^2·kg^{-2}. Verify that $g \approx 9.8$ m·s^{-2} for Earth ($R \approx 6.4 \times 10^6$ m, $M \approx 6 \times 10^{24}$ kg) *Note: To input numbers this large and have them successfully convert to floats, use "e notation", so* 6×10^{24} *becomes 6e24. You are also free to type a 6 followed by 24 zeros.*

2. Modify your quadratic equation code to use a function, `solve_quadratic(a,b,c)` which takes 3 numbers as parameters and prints the solution to the quadratic equation $ax^2 + bx + c = 0$ (you can and should use the code you've already written, just turn it into a function)