Python Worksheet 1

1. Write a program that prints out your full name.
2. Write a program that adds two numbers.
3. Write a program that assigns the value 5 to a variable ***m*** representing mass and a value 10 to a variable ***v*** representing speed and then prints the kinetic energy.
4. Give the type and value of the result of each expression or state when an error occurs (Use the console).
    a. 13 - 5
    b. 2.2 + 0.8
    c. 5 * 4
    d. 5.0 * 4
    e. 12 // 3
    f. 12.0 / 3
    g. 5 * 'a'
    h. 'a' + 'b'
    i. 'a' + 1
    j. 5 % 2
    k. 4 % 7
    l. -4 % 7
    m. (1 + 2) * ('a' + 'b')
    n. 'ab' - 'b'
    o. 5 / 0
5. Write a program that takes a person's name as input and then prints the following:

    "Your name is John Smith, Congratulations!!!"

6. Write a program that prompts the user to input a number. Assume the input will be positive. Print the natural logarithm of this number.
7. Write a program that prompts the user to input the lengths of two sides of a triangle and the angle between them (in degrees). Print out the area of this triangle (recall A = 0.5*ab*sin θ).
8. Write a function add() that takes two numbers as parameters and returns their sum.
9. Write a function tenth_power() that takes one number as a parameter and returns the value of the number to the tenth power.
10. Given two numbers, write a function to find the Maximum of these two numbers.
11. Write a function to find the area of a circle.
12. Write a program that allows the user to enter two positive integers. If one number divides the other, print "yes", otherwise print "no".
13. Print a list of five numbers. Multiply each element by 9 and assign it to a new list. Subtract two lists and print the output.
14. Use "range" to create the list [2,4,6,8,10,12,14,16,18,20,22].

15. Given the list ['John Smith', 'Michael Anderson', 'Archibald Farnsworth the Fourth'], use one line of code replaces the middle entry with some other name.
16. Write a program that prints out the squares of all the positive integers from 1 to 10.
17. Write a program that sums the first 100 positive integers and prints the sum.
18. Write a program that sums the first n integers and prints the sum. n should be read from user input.
19. Ask the user for a positive integer. Print out all the integer divisors of this number, including 1 and itself.
20. Write a program that prints out the first 100 prime numbers. A number is prime if it is a positive integer such that its only integer divisors are 1 and itself. By convention, 1 is not considered a prime number.
21. You have already written a program that calculates all prime numbers less than 100. Write a function “primes” that takes one integer parameter and returns the number of primes less than that integer.