Programming 1: Lab 1 : Basic Syntax and Example Programs

Write the python code for the following questions. Handle all the valid and invalid test cases. Write down relevant comments in your code:

1. Take 2 numbers as input from the user and find the result of five basic arithmetic operations, addition, subtraction, multiplication, division and modulus.

2. Input the length and width (in metres) of a plot and calculate its area. Check for valid and invalid cases.

3. Modify the above question to take input in feet and calculate the area in square metres.

4. Take 2 integers x and y as input and find whether y is divisible by x or not. For negative integers, display the message "Invalid input".

5. Take an integer as input and check whether it is even or odd.

6. Find the area of a Circle of radius r. Only radius between 1 and 100 should be accepted.

7. Write a program that calculates the result of following expression:

$$\frac{9.5 \times 4.5 - 2.5 \times 3}{45.5 - 3.5}$$

8. Take a value of temperature as input (in Celsius) and convert into degree Fahrenheit. Also, display the equivalent temperature in Kelvin.

9. Using the temperature conversion formula, calculate the value at which the Celsius and corresponding Fahrenheit values are the same. Hint: Take x as unknown and solve for x.

10. The a value of year as input and find whether it is a leap year or not. Consider all the cases of valid and invalid inputs. Write down the test cases for the same.