PGR107 – Python Programming

Decisions

1. What do these code fragments print?

a.
```
n = 1
m = -1
if n < -m :
   print(n)
else :
   print(m)
```

b.
```
n = 1
m = -1
if -n >= m :
   print(n)
else :
   print(m)
```

c.
```
x = 0.0
y = 1.0
if abs(x - y) < 1 :
   print(x)
else :
   print(y)
```

d.
```
x = sqrt(2.0)
y = 2.0
if x * x == y :
   print(x)
else :
   print(y)
```

2. Write a program that uses an **if/elif/else** sequence to validate the user's input to be in the range 1-10. The number is entered by the user and the program will determine if the number is between 1 and 10. If the number entered is less than 1, the program will print "**The number you entered is < 1**". If the number entered is greater than 10, the program will print "**The number you entered is > 10**". If the number is between 1 and 10, the program will **print the number**.

Sample Output

```
Enter a number between 1 and 10 --> 12
The number you entered is > 10

Enter a number between 1 and 10 --> -2
The number you entered is < 1

Enter a number between 1 and 10 --> 5
The number you entered is 5
```

3. Write a program that assigns letter grade for a quiz according to the following table and then prints the letter grade. Print a message if the input is not valid.

Score	Grade
90-100	A
80-89	B
70-79	C
60-69	D
< 60	F

Sample Output

```
Enter the score (0-100): 97
The letter grade is A
```

Another Sample Output

```
Enter the score (0-100): 44
The letter grade is F
```

Another Sample Output

```
Enter the score (0-100): 120
Invalid input. The score must be in the range (0-100)
```

4. Write a program that calculates multiplication, division, addition or subtraction of two numbers, a and b, entered by the user. The user will also enter operator type (*, /, + or -). If the operator is **(*)**, the program will compute (**a*b)**. If the operator is (**/)**, the program will compute (**a/b)** (if **b** is not equal to zero). If the operator is **(+)**, the program will compute (**a+b)**. And if the operator is (**-)**, the program will compute **a-b**. For any other operators, the program prints the message: "**Invalid operator or operator is not in the list**".

Sample Output

```
Enter a: 5
Enter b: 4
Enter operator type: *
Result is 20
```

5. Write a program to get a weight in either Pound (lbs) or Kilogram (kg) and converts it to the other unit. **1 Kilogram = 2.2 Pounds** and **1 Pound = 0.45 Kilogram**.

Sample Output

```
Weight: 160

(L)bs or (K)g: L

You are 72.0 kilo(s)
```

6. Write a program that reads in a string and prints whether it
   • contains only letters.
   • contains only uppercase letters.
   • contains only lowercase letters.
   • contains only digits.
   • contains only letters and digits.
   • starts with an uppercase letter.
   • ends with a period.