CS21 Assignment #3

READ THE ENTIRE DOCUMENT – There are three programs to submit. Use the specified name for your scripts.

Any work you submit for this assignment should be authored entirely by yourself. Assistance is permitted from the instructor or teaching assistants only. All submitted programming assignments are subject to originality verification through software designed and used for the Measure Of Software Similarity (MOSS).

Reminders (not following will result in point deductions):

Use named constants! No magic numbers!

It is expected that you will complete the same process of development that use in class. When you reach the point of having an algorithm (pseudocode), this will become the comments of your program as a starting point for writing code. Comment first, then code!

Be sure to include comments at the top of the program that include your name, class and a short description of the program.

Be sure all output is formatted. Unless otherwise, specified, displays non-integer values with 2 digits after the decimal point.

1. (biggest_num.py) Write a program that prompts the user for 3 integer values. The program should display the numbers in descending order. Be sure to handle the case where the user enters the same number for 2 or 3 of the values. NOTE: *You must use if statements (if, if/else, if elif), no use of loops or the sort method permitted!*

Sample run #1

```
First number? 56
Second number? 88
Third number? 12
Descending order: 88 56 12
```

Sample run #2

```
First number? 5
Second number? -10
Third number? -5
Descending order: 5 -5 -10
```

Sample run #3

```
First number? 2
Second number? 1
Third number? 2
Descending order: 2 2 1
```

2. (mass_weight.py) Complete Programming Exercise 3-5 (Mass and Weight) from the textbook. If the user supplies a negative value for mass, issue a message and do nothing further. If you're unsure of how to include an apostrophe in your prompt, revisit chapter 2. Don't forget to use a constant!

Sample run #1

```
Enter the object's mass in kilograms: 10
Object Weight:  98.00 newtons
The object is too light. It weighs less than 100 newtons.
```

Sample run #2

```
Enter the object's mass in kilograms: 50
Object Weight:  490.00 newtons
```

Sample run #3

```
Enter the object's mass in kilograms: 75
Object Weight:  735.00 newtons
The object is too heavy. It weighs more than 500 newtons.
```

Sample run #4

```
Enter the object's mass in kilograms: -10
Mass must be >= 0
```

3. (eggs.py) Write a program that calculates the number of cartons needed to pack the eggs just collected. Each carton contains one dozen eggs. Validate input (number must be non-negative). Use the integer division and remainder operators. Don't forget to use a constant.

Sample run #1

```
This program will determine the required number of 1-dozen egg cartons.
How many eggs did you collect today? 144
We will pack your 144 eggs in 12 cartons.
There will be 0 eggs left over.
```

Sample run #2

```
This program will determine the required number of 1-dozen egg cartons.
How many eggs did you collect today? -5
Your value cannot be negative.
```

Sample run #3

```
This program will determine the required number of 1-dozen egg cartons.
How many eggs did you collect today? 45
We will pack your 45 eggs in 3 cartons.
There will be 9 eggs left over.
```