Lab 3 – Thursday May 31, 2018

Question 1

The purpose of this question is to write a python program (script) that uses list comprehension, the **range** function and the **zip** function.

Using list comprehension and the range function create a list of integers named **sevens** containing the integers from 7 to 140 inclusive that are multiples of 7. Using list comprehension create new list of integers by dividing each element in **sevens** by 2 and then subtracting 3.

In a **for** statement use the **zip** function to select the numbers from the two lists and print a table as shown below. Be sure to print the header before entering the **for** loop. Use format codes so that values in the table line up as shown below.

```
------------------------------------------------------------------

       N    N/2-3
       7        0
      14        4
      21        7
      28       11
      35       14
      42       18
      49       21
      56       25
      63       28
      70       32
      77       35
      84       39
      91       42
      98       46
     105       49
     112       53
     119       56
     126       60
     133       63
     140       67

Programmed by Stew Dent.
Date: Sat May  26 10:10:08 2018
End of processing.
```

Question 2

The purpose of this question is to write a python program (script) to evaluate equation (1) for equally sized intervals along the x-axis. As an interval has 2 endpoints, the number of x values will be 1 more than the number of intervals. You must determine the size of the intervals based on the range of values for x and the number of intervals. Input the values for the first value of x, the last value of x and the number of intervals. Print a table as shown below for x and f(x). Use format codes so that the values in the table line up as show in the sample run of the program.

$$f(x) = x^2 - 3x + 2 \qquad (1)$$

A sample run of the program for x=0.0 to x=5.0 and 20 intervals is shown below.

```
---------------------------------------------------------------

Enter the first value for x: 0.0

Enter the last value for x: 5.0

Enter the number of intervals: 20

f(x) = x^2 - 3x + 2 for x = 0.0 to x = 5.0

    x       f(x)
 0.00     2.0000
 0.25     1.3125
 0.50     0.7500
 0.75     0.3125
 1.00     0.0000
 1.25    -0.1875
 1.50    -0.2500
 1.75    -0.1875
 2.00     0.0000
 2.25     0.3125
 2.50     0.7500
 2.75     1.3125
 3.00     2.0000
 3.25     2.8125
 3.50     3.7500
 3.75     4.8125
 4.00     6.0000
 4.25     7.3125
 4.50     8.7500
 4.75    10.3125
 5.00    12.0000

Programmed by Stew Dent.
```

```
Date: Sat May  26 10:12:22 2018
End of processing.
```