CSc11300 – Programming Languages In-Class Exercise 1
Python3 Functions

Send your codes to the instructor via e-mail (ayuksel@ccny.cuny.edu). Make a script file that includes example results as comments. Add your name and the session (morning/afternoon1/afternoon2). Just the mathematical solutions will not be accepted. You may not use the Python3 codes we have not learned so far.

A. Write a function to convert minutes to milliseconds. Call your function for some example argument.

B. Use the ***math*** module import to use square root and compute the roots of a quadratic equation. Call your function for the coefficients a, b, c as 1, 2, 1 respectively.

$$\Delta = b^2 - 4ac,\ x = \frac{-b \pm \sqrt{\Delta}}{2a}$$

C. The ***quad*** function from the ***integrate*** module of the ***scipy*** module, is provided to integrate a function of one variable between two points. An example use is provided below;

$$\int_{-2}^{4} 6x^3 - 4x^2 \mathrm{d}x$$

```
quad(lambda x: 6*x**3 - 4*x**2, -2, 4)
```

```
(264.00000000000006, 3.703317987014864e-12)
```

Use proper notation to access and call the ***quad*** function. And use ***help***() function to learn the details about the parameters of the ***quad*** function.

Then turn the lambda function which is a parameter itself, into a regular function and use the function you created to evaluate the integration above.

D. Say you have a cube with side of n. And you have some amount of marbles (round, sphere) with radius $^{n}/_{4}$ How many marbles can you fit in the cube? Obtain the solution with the use of functions. (Write a function and call it.)

E. Write a function and call the function to give the following output: (PS: \n, \t, if-else, and loops are not allowed)