# Homework 4

## Problem 04-A: NumPy 2-dim Arrays

Write a Python program that performs the following steps:

1. Creates a 5x6 NumPy array of single-precision floating-point numbers with values ranging from 6.0 to 35.0.
2. Converts the elements of this array to their corresponding square roots.
3. Adds to the elements of the five rows the values 1., 2., 3., 4., and 5, correspondingly.
4. Prints the resultant array's arithmetic mean.

## Problem 04-B: Solving a linear system of equations

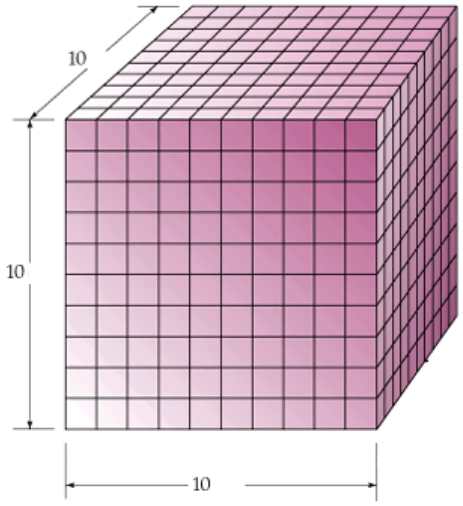
Solve the following system of linear equations using NumPy Linear Algebra functions, i.e., find the values of a, b, and c that satisfy the following three equations:

$$2a + b + 3c = 13$$
$$-3a - 4b + 7c = 10$$
$$5a + 2b - c = 6$$

## Problem 04-C: Finding the sum of the center of a 3D array

Consider the following Python code that generates a three-dimensional array. This array has 1,000 elements. Imagine that this array is a cube as shown blow.

```
np.random.seed(7)
a = np.random.randn(10, 10, 10)
```




Write a Python statement to find the sum of the eight array elements in the cube center.

## Problem 04-D: Modifying Arrays

Consider the following Python code that generates a two-dimensional array of ten rows and 3 columns.

```
np.random.seed(7)
a = np.random.randn(10, 3)
```

Write a Python code that replaces every element $i$: $-1 < i < +1$ with the value 0.0, then finds the sum of each column.