Matrix

The objectives of the task: Secure the skill of solving systems of linear algebraic equations.

Task Requirements: Solve a system of linear algebraic equations and perform check.

Instructions for performing:

1. Create matrix of coefficiets of system of equations **A**. - 0.2 points
2. Create vector of free coefficits **b**. - 0.2 points
3. Create The first-fourth auxiliary matrixs **A1-A4**. - 0.6 points
4. Find main determinant **D**. - 0.4 points
5. Find determinants of auxiliary matrix **d**. - 0.6 points
6. Find vector of unknowns **x**. - 0.4 points
7. Checking **A*x-b**. - 0.4 points
8. Available Comments - 0.2 points

Maximum evaluation are **3 points**

You need to create a script file with the solution proposed the system of equations acting on instructions. Attach a script file with the decision and send.

Variants of tasks.

1.
$$\begin{cases} -x_1 - x_2 - 2x_3 - 3x_4 = 2 \\ 3x_1 - x_2 - x_3 - 2x_4 = -8 \\ 2x_1 + 3x_2 - x_3 - x_4 = -12 \\ x_1 + 2x_2 + 3x_3 - x_4 = 8 \end{cases}$$

5.
$$\begin{cases} 10x_2 + 30x_3 + 40x_4 = -50 \\ 10x_1 + 20x_3 + 30x_4 = -40 \\ 30x_1 + 20x_2 - 50x_4 = 120 \\ 40x_1 + 30x_2 + 50x_3 = 50 \end{cases}$$

2.
$$\begin{cases} x_1 - 2x_2 + 3x_3 - 2x_4 = -6 \\ x_1 + x_2 - 2x_3 - 3x_4 = -8 \\ 3x_1 - 2x_2 - x_3 + 2x_4 = 4 \\ 2x_1 + 3x_2 + 2x_3 + x_4 = 8 \end{cases}$$

6.
$$\begin{cases} 0.3x_1 + x_2 + 1.67x_3 - 2.3x_4 = 4 \\ 3x_1 + 5x_2 + 7x_3 - x_4 = 0 \\ 5x_1 + 7x_2 + x_3 - 3x_4 = 4 \\ 7x_1 + x_2 + 3x_3 - 5x_4 = 16 \end{cases}$$

3.
$$\begin{cases} x_1 + 2x_2 + 3x_3 + 4x_4 = 5 \\ 2x_1 + x_2 + 2x_3 + 3x_4 = 1 \\ 3x_1 + 2x_2 + x_3 + 2x_4 = 1 \\ 4x_1 + 3x_2 + 2x_3 + x_4 = -5 \end{cases}$$

7.
$$\begin{cases} 2x_1 + x_2 + 5x_3 + x_4 = 8 \\ 0.333x_1 - x_2 - 2x_4 = 3 \\ 2x_2 + x_3 + 2x_4 = -5 \\ x_1 + 4x_2 + 7x_3 + 6x_4 = 0 \end{cases}$$

4.
$$\begin{cases} 0.1x_1 + 0.5x_2 + 0.3x_3 - 0.4x_4 = 2 \\ 0.3x_1 + 0.1x_2 - 0.2x_3 = 0.9 \\ 0.5x_1 - 0.7x_2 + 1x_4 = -0.9 \\ 0.3x_2 - 0.5x_3 = 0.1 \end{cases}$$

8.
$$\begin{cases} -x_1 + x_2 + x_3 + x_4 = 12 \\ 2x_1 + x_2 + 2x_3 + 3x_4 = 13 \\ 1.5x_1 + x_2 + 0.5x_3 + x_4 = 7 \\ 4x_1 + 3x_2 + 2x_3 + x_4 = -15 \end{cases}$$

9.
$$\begin{cases} -2x_1 - x_2 + 3x_3 + 2x_4 = 40 \\ -x_1 + x_2 + x_3 + 0.6667x_4 = 20 \\ -3x_1 - x_2 - x_3 + 2x_4 = 60 \\ -3x_1 - x_2 + 3x_3 - x_4 = 60 \end{cases}$$

10.
$$\begin{cases} 3x_1 - 6x_2 - 3x_3 + 3x_4 = 8 \\ 2x_1 - x_2 + x_3 + x_4 = 5 \\ x_1 + x_2 + 2x_3 + x_4 = -1 \\ x_1 - x_2 - x_3 + 3x_4 = 10 \end{cases}$$

11.
$$\begin{cases} 20x_1 + 5x_2 + 5x_4 = -9 \\ x_1 - 3x_2 + 4x_3 = -7 \\ 3x_2 - 2x_3 - 4x_4 = 12 \\ x_1 + 2x_2 - x_3 + 3x_4 = 10 \end{cases}$$

12.
$$\begin{cases} x_1 - 3x_2 + x_3 + x_4 = 11 \\ x_1 + 3x_2 + 5x_3 + 7x_4 = 12 \\ 3x_1 + 5x_2 + 7x_3 + x_4 = 0 \\ -5x_1 - 7x_2 - x_3 - 3x_4 = -4 \end{cases}$$

13.
$$\begin{cases} 2x_1 + x_2 + x_3 - x_4 = 11 \\ 2x_1 + x_2 - 3x_4 = 2 \\ 3x_1 + x_3 + x_4 = -3 \\ 4x_1 - 4x_2 - 4x_3 + 10x_4 = 7 \end{cases}$$

14.
$$\begin{cases} 2x_1 + x_3 + 4x_4 = 19 \\ x_1 + 2x_2 - x_3 + x_4 = 18 \\ 2x_1 + x_2 + x_3 + x_4 = 15 \\ 2x_1 - 2x_2 + 4x_3 + 2x_4 = -11 \end{cases}$$

15.
$$\begin{cases} 5x_1 - 3x_2 - 7x_3 + 3x_4 = 1 \\ -x_2 - 3x_3 + 4x_4 = -5 \\ x_1 - 2x_3 - 3x_4 = -4 \\ 1.3333x_1 - x_2 - 1.6667x_3 = 13 \end{cases}$$

Evaluation criteria: Available Comments, no mistakes, the sequence of actions according to instructions.