L1-ST Y.A: 2023-2024

Series of Tutorial 2 - Math2

Exercise 1

Let the system be (S)

$$\begin{cases} x + 2y = 5, \\ 2x + 7y = -2. \end{cases}$$

Resolve the system (S) using the four methods: substitution, determinants (Cramer's rule), Gauss elimination (pivot method), and by inverting the coefficient matrix.

Exercise 2

Resolve the following system using the determinant method:

$$\begin{cases} 2x + 3y - z = 5 \\ x - 2y + 2z = -1 \\ 3x + y - 3z = 4 \end{cases}$$

Exercise 3

Solve the following system of linear equations using the method of inverse matrix of coefficients:

$$\begin{cases} 2x + 3y - z = 1 \\ x - y + 2z = 3 \\ 3x + y + z = 7 \end{cases}$$

Exercise 4

Solve the following system using the Gauss elimination method (pivot method):

$$\begin{cases} x + 2y - z = 4 \\ 2x - y + z = 0 \\ 3x + 4y + 2z = 10 \end{cases}$$

Exercise 5

Resolve the following system where x, y, and z are positive real numbers:

$$\begin{cases} x^3 y^2 z^6 = 1, \\ x^4 y^5 z^{12} = 2, \\ x^2 y^2 z^5 = 3. \end{cases}$$