

## SECTION ONE.I.1: GAUSS'S METHOD

Goals:

- Know Terminology: linear combination, linear equation, coefficients, constant, a system of linear equations, a solution to a system of linear equations, elementary row operations
- Understand an algorithm: Gauss's Method (or Gaussian Elimination). Understanding an algorithm means knowing *when* to apply it, *how* to apply it and correctly *interpreting* the results.

1. linear combination

2. linear equation

3. system of linear equations

4. a solutions to a system of linear equations

5. elementary row operations

6. Gauss's Method

7. Example 1:

$$\begin{array}{rclcl} x_1 & - & 2x_2 & + & x_3 & = & 0 \\ & & 2x_2 & - & 8x_3 & = & 8 \\ 5x_1 & & & - & 5x_3 & = & 10 \end{array}$$

8. Example 2:

$$\begin{array}{rclcl} & & x_2 & - & 4x_3 & = & 8 \\ 2x_1 & - & 3x_2 & + & 2x_3 & = & 1 \\ 4x_1 & - & 8x_2 & + & 12x_3 & = & 1 \end{array}$$

9. Example 3:

$$\begin{array}{rclcl} & & x_2 & - & 4x_3 & = & 8 \\ 2x_1 & - & 3x_2 & + & 2x_3 & = & 1 \\ 2x_1 & - & 2x_2 & - & 2x_3 & = & 9 \end{array}$$