Module 1 - Linear Systems and Span
Topic 1 - Systems of Linear Equations
Lesson 1 - Solution Sets of Linear Equations

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1 Topics

We will explore the following concepts:

- Systems of Linear Equations
- Elementary Row Operations

2 Learning Objectives:

Students should be able to do the following after watching the video and completing the assigned homework:

- Apply elementary row operations to solve systems of linear equations.

3 A Single Linear Equation

A linear equation has the form

$$a_1x_1 + a_2x_2 + \ldots + a_nx_n = b$$

a_1, a_2, …, a_n and b are the **coefficients**, x_1, x_2, …, and x_n are the **variables**, and n is the **dimension**, or number of variables.

For example:

- $2x_1 + 4x_2 = 4$ is a line in 2 dimensions
- $3x_1 + 2x_2 + x_3 = 6$ is a plane in 3 dimensions