

Linear Equations

In this chapter, we introduce linear equations, laying the foundation for the core themes of Analysis I.

System of Linear Equations

Linear Equations

Row Reduction and Echelon Forms

Echelon Form

Uniqueness of the Reduced Echelon Form

Pivot positions

Existence and Uniqueness Theorem

Vector Equations

Algebraic Properties of \mathbb{R}^n

subset of \mathbb{R}^n

The Matrix Equation $Ax = b$

Matrix equation

$m \times n$

Solution Sets of Linear System

Linear Independence

Introduction to Linear Transformations

The Matrix of a Linear Transformation