MATH-332: Linear Algebra Chapter: 01

Linear Equations in Linear Algebra

Section 1.3: Vector Equations

pgs. 28-37 *June 17, 2009*

Lecture: Vector Equations

Topics:	Geometric and Algebraic Properties of Vectors Linear Combinations and Spanning Sets Geometry of Spanning Sets Applications of Linear Combinations
Problems	Prac: 1,2 Prob: 5, 11, 17, 19, 23, 25

Section Goals

- Understand the geometric and algebraic properties of vectors in $\mathbb{R}^n$.
- Study the relationship of linear combinations and spanning sets to linear systems of equations.

Section Objectives

- Define the algebra and geometry of *vectors* from $\mathbb{R}^n$.
- Define *linear combination* and show its algebraic equivalence to the matrix equation $\mathbf{Ax} = \mathbf{b}$.
- Define the *spanning set* and its corresponding geometry.
- Contextualize the previous language in the setting of linear systems of equations.