

**MATH-332: Linear Algebra**Chapter: 01Linear Equations in Linear AlgebraSection 1.2: Row Reduction and Echelon Forms

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*June 15, 2009*Lecture: Row Reduction and Echelon Forms**Topics:**

- Uniqueness of Reduced Row Echelon Form
- Pivots and the Row Reduction Algorithm
- General Solutions of Linear Systems
- Existence and Uniqueness

**Problems**

- Prac: 1,2
- Prob: 4, 5, 13, 15, 19, 21, 23, 29

**Section Goals**

- Understand how the row-reduction algorithm can be used to find the echelon form of a matrix and how this echelon form relates to the fundamental solution set of the corresponding linear system.
- Characterize the existence and uniqueness solutions to linear systems of equations by their geometric interpretation.

**Section Objectives**

- Define row-echelon form and given a matrix use the row-reduction algorithm to find it.
- Relate the pivot positions of a matrix to the general solution of its corresponding linear system.
- State the existence and uniqueness theorem for linear systems and relate its implications to the geometric meaning of the linear equations.