

MATH-332: Linear Algebra

Chapter: 05

Linear Equations in Linear AlgebraSection 1.5: Solution Sets of Linear Systems

pgs. 50-57

June 22, 2009

Lecture: Solution Sets of Linear Systems**Topics:**

Homogeneous systems  
 Non-homogeneous systems  
 General solution in parametric vector form

**Problems**

Prac: 1, 2  
 Prob: 5, 15, 23, 29, 31, 33

**Section Goals**

- Understand how solutions to a non-homogeneous linear system of equations can be described in terms of shifted-solutions to their corresponding homogeneous systems.
- Algebraically and geometrically characterize solutions to linear systems by using a parameter vector form for its description.

**Section Objectives**

- Solve homogeneous and non-homogeneous linear systems using the row reduction algorithm and report this solution in a parametric vector form that highlights its explicit dependence on the systems free-variables.
- Present and prove theorem 6 on page 53, which provides a general description of solutions to non-homogeneous linear systems.