Linear Algebra Test 2 Review, test date: Friday November 1st

Material Covered

- Systems of linear equations.
- Vectors
- Matrices
- Linear Transformations
- Subspaces of $\mathbb{R}^n$

Textbook Reference

- Chapter 1: sections 1 and 2.
- Chapter 2.
- Chapter 3: sections 1, 2, and 3.
- Chapter 4.

Important Concepts

- Relationships, relationships, relationships! (between all the material covered)

Important Skills

- Be able find any of the following spaces:
  - Row space
  - Column space
  - Null space
  - Kernel
  - Domain
  - Range
- Given any one of the following, be able to an associated version of the rest:
  - System of linear equations
  - Set of column vectors
  - Matrix
  - Linear transformation
- Be able to analyze a matrix in echelon form for relevant information about:
  - Associated spaces
  - Associated equations
  - Associated vectors
  - Associated linear transformations
  - Associated applied problems
- Be able to analyze a basis for relevant information.
- Be able to determine when a collection of vectors is a basis for a space.
- Be able to find a basis for a given space.
- Be able to find examples illustrating any property of any object we've talked about.
- Be able to sketch a proof of:
  - Linear independence or dependence
  - "is a basis"
  - Dimension