Introduction

This assignment is designed to prepare you for our fourth class meeting. Complete it before our meeting on Friday, January 24.

Goals

Before the next class meeting, a student should be able to:

- compute a matrix-vector product Ax in two ways:
  - as a linear combination of columns
  - as a sequence of dot products with rows.
- Connect a matrix with a system of linear equations with a matrix equation, and conversely
- give examples of sets of vectors in $\mathbb{R}^3$ which are independent (or dependent)
- Discuss what invertibility for a matrix might mean.

After the next class meeting, a student should be able to:

- Give examples of systems of linear equations which have no solutions, a unique solution, or infinitely many solutions.

Reading

Required: *Strang* Chapter 1 section 3, pages 22–28
Optional: No single part of *Hefferon* corresponds well with this topic.
Optional: Look in the mailing list for a link to Strang's MIT lectures. They might start being useful...

Exercises

The minimal exercise set is Strang, Section 1.3 exercises 1, 3-6, 8.

Note: Strang's text has wonderful exercises. A student with the time to do it would do well to complete more exercises than listed here.