

## Introduction

This assignment is designed to prepare you for our second class meeting. Complete it before our meeting on Wednesday, January 15th.

## Goals

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

- Represent a vector as a list of numbers, a point in space, or an arrow.
- Use the vector operations of *addition*, *scalar multiplication*, and *linear combination*.
- Draw representations of the vector operations, for sure with paper and pencil, perhaps with a computer.

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

- Connect vector equations  $a \cdot \mathbf{u} + b \cdot \mathbf{v} = \mathbf{w}$  involving linear combinations of vectors to two types of pictures: one using the components to form the equations of *hyperplanes* (the row picture), and one using the linear combination directly (the column picture).

## Reading

**Required:** *Strang* Chapter 1 section 1 (pages 1–7).

**Optional:** *Hefferon* Chapter One, Part II Linear Geometry, Section 1 Vectors in Space (pages 32–37).

## Exercises

The minimal exercise set is Strang, Section 1.1 exercises 1,3,5,6,16,20.

*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.*