

Chapter 2. Vectors

Note. In this chapter, we informally define vectors, scalars, and their manipulations. Our approach here is to use physics and physical arguments to motivate the definitions and manipulations. In a Linear Algebra class (such as ETSU's MATH 2010), these ideas are dealt with in a mathematically rigorous way (though physical arguments still motivate the definitions there). See my online notes for Linear Algebra at: <http://faculty.etsu.edu/gardnerr/2010/notes.htm>.

Section 2.1. Scalars and Vectors

Definition. A physical quantity that is completely described by a real number is a *scalar*.

Example. Mass, temperature, and speed are scalars.

Definition. A *vector* is a quantity described by a direction and a magnitude (a nonnegative real number).

Example. Position, force, and velocity are vectors.

Note. The book will represent vectors by boldfaced letters. I will represent vectors (in these notes and when writing) with an arrow over a letter: \vec{v} . Other common conventions are: \bar{v} , \underline{v} , and \mathbf{v} .

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