

4.1: Introduction to One Dimensional Kinematics

Kinematics is the mathematical description of motion. The term is derived from the Greek word *kinema*, meaning movement. In order to quantify motion, a mathematical coordinate system, called a *reference frame*, is used to describe space and time. Once a reference frame has been chosen, we shall introduce the physical concepts of position, velocity, and acceleration in a mathematically precise manner. Figure 4.1 shows a Cartesian coordinate system in one dimension with unit vector \hat{i} pointing in the direction of increasing x -coordinate.

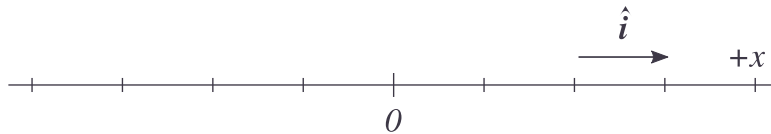


Figure 4.1.1: A one-dimensional Cartesian coordinate system. (CC BY-NC; Ümit Kaya)

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