# Section 1.1 Daily Prep Assignment

## Overview

This section covers the following concepts: Average velocity. Slope of a secant line. Instantaneous velocity.

## Basic learning objectives

These are the tasks you should be able to perform with reasonable fluency when you arrive at your next class meeting. Important new vocabulary words are indicated in italics.

- Given the position function, find the position of the object at a specific time.
- Compute the average velocity of an object on a specific time interval, using the first average velocity formula.
- Compute the average velocity of an object on a specific time interval, using the second average velocity formula.
- Explain the difference between the first and the second average velocity formulas.
- State the units of the average velocity of an object.

## Advanced learning objectives

In addition to mastering the basic objectives, here are the tasks you should be able to perform after class, with practice:

- Explain the graphical interpretation of the average velocity. Explain the difference between instantaneous velocity and average velocity.
- Use the second average velocity formula to find the average velocity of an object on an interval starting at time $t = a$.
- and ending at time $t = a + h$, where $a$ is given but $h$ is a variable. Express the answer in simplest form as a function of $h$.
- Given the average velocity of an object from time $t = a$ to time $t = a + h$, find its instantaneous velocity at the single moment $t = a$.

## To prepare for class

As you follow the instructions listed below (in particular if watching a video), you should **take notes for yourself**, just as you would in a lecture. In particular, you should immediately **make yourself a list of things you didn't quite understand**. When you are done, you should go over this list yourself again and see if some of the points have become clear to you - and if not, you should write a detailed & clear feedback message to your teacher.

- Complete the "Tell me about yourself" exercise.
- Complete the "Reading a Math Textbook" exercise.

- Complete the "Group work" exercise.
- Read the Introduction in Section 1.1 in Active Calculus and Do the Preview Activity
- Read the the rest of Section 1.1.

Additionally but optionally

- Watch the overview video.
- Watch the screencasts: screencast 1.1.1, screencast 1.1.2, screencast 1.1.3

## After class

- Finish any in-class activities you might not have finished during class.
- Complete the "Math Refresher Part 1" WeBWorK.
- (Optionally) Do the problems on the WeBWorK assignment for this section.