

Hi, it's Chris again!

# Our Goal for the Lesson

Much like we can on numbers, we can perform arithmetic operations using points and vectors. In the next few sections we will describe some operations that will come up often while we study linear algebra. As a note of forewarning, there will be several formulas in this lesson.

While committing these formulas to memory will be helpful in solving linear algebra problems in the future, we think that the goal of this minicourse should be to give you tools that can be immediately applied to problems in the OMS. Therefore, as we proceed in this lesson, we won't ask you to memorize the formulas as they are presented. Instead, by the end of the lesson, you will have coded a library of functions applicable to solving computational geometry problems in two- or three-dimensional space: for example, finding the midpoint of two points or finding the shortest distance from a point to a line.

Please feel free to code the library in any language of your choice. During this lesson, I will be demonstrating an example implementation in Python. If you'd like to follow along with me in this Python module, you can find a starting point in the downloadables section on this page. In the next video, I'll describe some of the functionality of the Python module. If you prefer to use a different language, feel free to skip past the next video.

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# Summing Up

In this lesson, we covered some of the most common vector operations you'll encounter in this course and in applications of linear algebra in real life. Our goal was for you to become more familiar with the arithmetic of vectors and also to gain a sense of the geometry underlying vector algebra. In the coming lessons, we'll start exploring how we can use these basic operations to solve different types of problems.

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