Standards

This unit was developed to meet the following standards.

California Academic Content Standards for Mathematics, Grades 9–12

- Students understand the concept of a relation and a function [*Algebra 1, 16.0*].
- Students compute areas of polygons, including rectangles, triangles, parallelograms, and trapezoids [*Geometry, 10.0*].
- Students know the effects of rigid motions on figures in the coordinate plane, including rotations, translations, and reflections [*Geometry, 22.0*].

Career and Technical Education AME Industry Sector Foundation Standards

4.0 Technology

Students know how to use contemporary and emerging technological resources in diverse and changing personal, community, and workplace environments:

4.2 Understand the use of technological resources to gain access to, manipulate, and produce information, products, and services.

4.7 Understand how technology can reinforce, enhance, or alter products and performances.

11.0 Demonstration and Application

Students demonstrate and apply the concepts contained in the foundation and pathway standards.

NCTM Standards

- Students understand vectors and matrices as systems that have some of the properties of the real number system [*Number and Operations*].
- Students develop an understanding of properties of, and representations for, the addition and multiplication of vectors and matrices [*Number and Operations*].
- Students use symbolic algebra to represent and explain mathematical relationships [*Algebra*].
- Students explore relationships (including congruence and similarity) among classes of two- and three-dimensional objects, make and test conjectures about them, and solve problems involving them [*Geometry*].
- Students use Cartesian coordinates to analyze geometric situations [*Geometry*].

- Students understand and represent translations, reflections, rotations, and dilations of objects in the plane by using sketches, coordinates, vectors, function notation, and matrices [*Geometry*].
- Students use various representations to understand the effects of simple transformations and their compositions [*Geometry*].
- Students use geometric ideas to solve problems in, and gain insight into, other disciplines and other areas of interest, such as art and architecture [*Geometry*].
- Students build new mathematical knowledge through problem solving [*Problem Solving*].
- Students communicate their mathematical thinking coherently and clearly to peers, teachers, and others [*Communication*].
- Students use the language of mathematics to express mathematical ideas precisely [*Communication*].
- Students recognize and use connections among mathematical ideas [*Connections*].
- Students create and use representations to organize, record, and communicate mathematical ideas [*Representation*].
- Students select, apply, and translate among mathematical representations to solve problems [*Representation*].