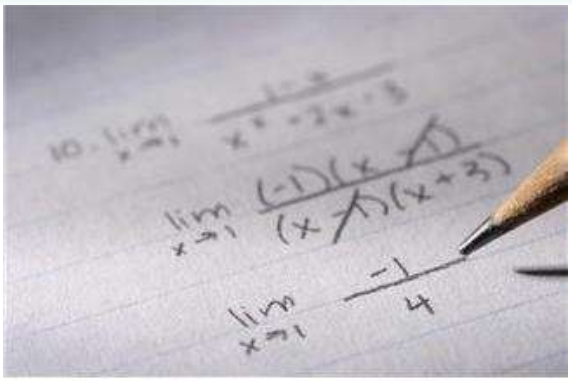
CALIFORNIA COMMON CORE STATE STANDARDS FOR MATHEMATICS

HIGHER MATHEMATICS



The California Common Core California Standards for Mathematics (CA CCSSM) (adopted by the State Board of Education in August 2010, and modified in January 2013) provide a progression of mathematics instruction and learning that prepares students for college and career. The CA CCSSM support students' success in the mathematics courses required for high school graduation and for acceptance at a University of California or California State University campus.

As a result of the January 2013 modifications to the CA CCSSM, the unique Grade 8 Algebra course has been replaced with an Algebra I course that covers the same content no matter the grade level of the student taking the course. The January 2013 modifications also organized the higher mathematics standards from conceptual categories into model courses. The model courses in higher mathematics are organized into two pathways:

The Traditional Pathway

- Algebra I
- Geometry
- Algebra II

The Integrated Pathway

- Mathematics I
- Mathematics II
- Mathematics III

It is a local school district decision whether to follow a traditional or integrated pathway, as well as if students begin taking higher mathematics courses during middle school or high school. Regardless of what decision each district makes, students must have learned the concepts and skills in the K–8 standards to be ready for the rigor of these courses.

The traditional pathway reflects a higher mathematics model typically seen in the U.S. This model consists of two algebra courses and a model geometry course. All three courses include statistics and probability standards. The integrated pathway is typically seen internationally and consists of a sequence of three model courses, each of which includes algebra, geometry and

statistics standards. This integration allows students to build proficiency and see connections and interrelationships between each domain, each year. Students enrolled in either pathway should arrive at the same point by the end of their third year of higher mathematics instruction.

In addition to the content standards, the CA CCSSM include eight Standards for Mathematical Practice. Together these sets of standards address ways of thinking about mathematics that foster mathematical understanding and expertise, and also skills and knowledge – what students need to know and be able to do. The standards call for mathematical practices and mathematical content to be connected as students engage in mathematical tasks in both model pathways.

Modeling (indicated by a ⋆ at the end of a standard) is both a conceptual category for higher mathematics as well as a Standard for Mathematical Practice. Modeling is "the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions."[1] Modeling can serve as an important avenue for motivating students to study mathematics as well as building their understanding of mathematics. As a mathematical practice, modeling should be interwoven throughout both pathways and bridge the gap between academic and real-world problems. Additional mathematics that students should learn in order to take advanced courses such as calculus, advanced statistics, or discrete mathematics is indicated by a (+) symbol in the higher mathematics standards.

The standards for kindergarten through grade eight prepare students for higher mathematics, and serve as the foundation on which to build mathematical knowledge. The standards for higher mathematics prepare students for college and career and productive citizenship. In short, the standards are a progression of mathematical learning in which the K–8 CA CCSSM support the development of a streamlined set of topics that focus on the prerequisite skills necessary for higher mathematics and later learning.

For additional information and resources about the CA CCSSM, please visit the California Department of Education Common Core State Standards Web page at http://www.cde.ca.gov/re/cc/.

[1] California Department of Education. 2013. *CA CCSSM*, Prepublication Version. Sacramento: California Department of Education. p. 134. <http://www.cde.ca.gov/ci/ma/cf/documents/ccssmathapril2013.doc>