

Geometry

In this comprehensive course, students are challenged to recognize and work with geometric concepts in various contexts. They build on ideas of inductive and deductive reasoning, logic, concepts, and techniques of Euclidean plane and solid geometry. They develop deeper understandings of mathematical structure, method, and applications of Euclidean plane and solid geometry. Students use visualizations, spatial reasoning, and geometric modeling to solve problems. Topics of study include points, lines, and angles; triangles; right triangles; quadrilaterals and other polygons; circles; coordinate geometry; three-dimensional solids; geometric constructions; symmetry; the use of transformations; and non-Euclidean geometries.

Algebra I

Students develop algebraic fluency by learning the skills needed to solve equations and perform manipulations with numbers, variables, equations, and inequalities. They also learn concepts central to the abstraction and generalization that algebra makes possible. Topics include simplifying expressions involving variables, fractions, exponents, and radicals; working with integers, rational numbers, and irrational numbers; graphing and solving equations and inequalities; using factoring, formulas, and other techniques to solve quadratic and other polynomial equations; formulating valid mathematical arguments using various types of reasoning; and translating word problems into mathematical equations and then using the equations to solve the original problems.