

## **The options for students leaving Math 7 are as follows:**

**Algebra I** Algebra is the foundation for all later work in mathematics; mastery of concepts and skills is imperative. This course will cover the essential Algebra I skills, concepts, and ideas. Topics covered will include linear and quadratic equations, word problems, factoring, algebraic fractions, graphing, function notation, systems of linear equations, and radicals. Students will have the opportunity to practice skills and to build a repertoire of problem-solving techniques. Some time is allocated for consistent, cumulative review and for practice recognizing the various types of mathematical situations that students may encounter. This is a one-year course.

**Algebra I Accelerated** Algebra is the foundation for all later work in mathematics; mastery of concepts and skills is imperative. Topics covered will include everything in Algebra I, as well as logic, linear inequalities, absolute value functions, and more challenging problems throughout each unit. This is a fast paced course. Rapid generalization and the ability to use abstraction are expected. This is a one-year course.

## **The options for students leaving Algebra are as follows:**

**Geometry** The content includes definitions, postulates and theorems; congruence and similarity of triangles and polygons; parallel lines; the Pythagorean theorem and its applications; analysis of area and volume; the geometry of circles; and basic techniques of analytical geometry. Students learn the fundamentals of formal logic and deductive reasoning, and are provided time to practice the visualization and logic skills needed. There is an emphasis on proof when the material allows it. Students work to explore, understand, and clearly communicate the ideas they encounter. In addition, some algebra review will be interwoven as needed.

**Geometry Accelerated** The content includes all of the content in **Geometry**, and in addition, several extension topics are incorporated, including perhaps constructions, the description of a locus, transformations, points of concurrency, or the hinge theorems. Students learn the fundamentals of formal logic and deductive reasoning. The course is rigorous and heavily proof-based. Students work to explore, understand, and clearly communicate the ideas they encounter. This is a fast-paced course. Rapid generalization, a solid mastery of Algebra I topics, and a strong ability to represent and interpret mathematical ideas visually are expected.

## **The options for students leaving Algebra II are as follows:**

**Topics in Precalculus and Finite.** The goals of this course include helping students learn to think about and communicate their mathematical understanding logically, and real world applications are emphasized. Topics covered will include exponents, logarithms, trigonometry, matrices, and finance. This course can be a great capstone mathematics experience, or it can serve as a bridge between Algebra II and either Precalculus or Statistics.

**Precalculus.** This is a demanding course, in which students synthesize their work in Algebra and Geometry, and extend their understanding to many new topics. To be successful in Precalculus, a student must have good mathematical insight, an ability to make solid problem solving decisions, abstract thinking skills, and must be prepared to synthesize and apply topics more extensively than in prerequisite

courses. The most natural next course for a student to take after Precalculus (either in high school or in college) is Calculus (either the AB level of AP Calculus or regular Calculus).

**Precalculus Honors.** Students who enjoy mathematical challenge, thinking through complicated and non-routine problems, and who are adept at internalizing new information at a quick pace are those who should consider our Precalculus Honors course. This is a very rigorous course. The most natural next course for a student to take after Precalculus Honors is AP Calculus (either the AB or BC level).

**Statistics.** A strong knowledge of statistics can serve students well in virtually every field they may choose to study in the future. Professions in the natural sciences, as well as the social, management and life sciences require the application of statistics, and a working understanding of statistical results is critical for all informed citizens. An AP option is offered, but not required. Students may take Statistics concurrently with any post-Algebra II math course, if desired.

### **The options for students leaving Precalculus are as follows:**

**Calculus.** Our regular calculus course focuses on both conceptual understanding and procedural skill. Differential calculus with applications will be covered in depth, and integral calculus will be solidly introduced. An emphasis is placed on the underlying meaning of concepts and the connections among them. This course is designed to provide a good foundation in calculus and is intended to help students transition smoothly into a college calculus course, if desired. The course meets 4 days per week.

**AP Calculus AB.** This is a college level calculus course that is both rigorous and intuitive. Topics include both differential calculus and integral calculus, with many applications. Students are required to take the Calculus Advanced Placement AB examination. The course meets 5 days a week.

**AP Calculus BC.** The BC level calculus course covers the same material as the AB level course, with the addition of a unit on infinite sequences and power series. Because of this, the course moves at a rapid pace, with new material being introduced most days. Students are required to take the Calculus Advanced Placement BC examination. The course meets 5 days a week.

**Multivariable Calculus.** This is a college-level course covering material from Calculus III and other advanced mathematics topics. It is meant to serve as a capstone experience for our most advanced students and help bridge the transition from high school mathematics to the rigor and style of mathematics in college. The course meets 4 days a week.

**Statistics.** A strong knowledge of statistics can serve students well in virtually every field they may choose to study in the future. Professions in the natural sciences, as well as the social, management and life sciences require the application of statistics, and a working understanding of statistical results is critical for all informed citizens. An AP option is offered, but not required. Students may take Statistics concurrently with any post-Algebra II math course, if desired. The course meets 4 days a week.