

# Mathematics Courses

All mathematics courses address the Creekside High School's Expected School Learning Results (ESLRs) with emphasis on *Effective Communicators & Strategic Thinkers*.

## Algebra 1A

This course is the first course in the college preparatory math program. Students study the basic operations of real numbers, solving equations, polynomials, and fractional expressions with an emphasis on teaching elementary algebra as an aid to problem-solving.

### Course Goals and Objectives

- ✓ Students recognize algebraic symbols.
- ✓ Students perform basic operations with real numbers.
- ✓ Students perform basic operations with polynomials.
- ✓ Students solve linear equations.
- ✓ Students perform basic operations with rational expressions.
- ✓ Students factor polynomials.
- ✓ Students simplify exponential expressions.
- ✓ Students solve application problems involving the above skills.

## Algebra 1B

This course will continue the study of fractional expressions, inequalities, linear equations and their graphs, systems of linear equations, rational and irrational numbers and quadratic functions and equations. This course will prepare students for subsequent course in the college preparatory math program.

### Course Goals and Objectives

- ✓ Students solve fractional equations.
- ✓ Students perform basic operations with radical expressions.
- ✓ Students solve inequalities.
- ✓ Students solve problems involving ratio, proportion and percent.
- ✓ Students solve and graph linear equations.
- ✓ Students solve systems of linear equations.
- ✓ Students perform basic operations with rational and irrational numbers.
- ✓ Students solve basic quadratic equations.
- ✓ Students solve problems involving direct and inverse variation.
- ✓ Students write equations using functional notation.
- ✓ Students solve problems involving absolute value.
- ✓ Students solve simple probability problems.
- ✓ Students solve application problems involving the above skills.

## Geometry A

This course is designed to introduce students to the basic structure of plane and solid geometry. The student will develop powers of spatial visualization while building knowledge of the relationships among geometric elements. Emphasis is placed on the deductive method of proof and the need for precision of language.

### Course Goals and Objectives

- ✓ Students define geometric terms.
- ✓ Students understand the relationships of points, lines and planes.
- ✓ Students write proofs in statement reason form.
- ✓ Students prove triangles and corresponding parts congruent.
- ✓ Students prove lines parallel.
- ✓ Students do simple indirect proofs.
- ✓ Students solve problems involving geometric inequalities.
- ✓ Students prove triangles similar.

**Note:** See *Mathematics Content Standards for California Public School, Kindergarten through Grade Twelve* for course Guidelines and Goals.

# Mathematics Courses

## Geometry B

This course continues the study of theorems, proofs, and their applications. The deductive method of proof and precision language will be continued. Algebraic skills are reviewed and strengthened and students are taught the ways algebra and geometry complement each other.

### Course Goals and Objectives

- ✓ Students solve problems involving properties of proportions.
- ✓ Students solve problems using the Pythagorean Theorem.
- ✓ Students solve area problems for polygonal regions.
- ✓ Students define sine, cosine, and tangent ratios.
- ✓ Students use trigonometric tables.
- ✓ Students solve problems involving plane coordinate geometry.
- ✓ Students solve problems involving circles and spheres.
- ✓ Students solve area problems for circles and sectors.
- ✓ Students solve volume problems for solids.

## Algebra 2A

This course is intended for students who will be pursuing the study of science and/or mathematics at the college level. Algebra 2 reinforces and improves skills studied in previous math courses with a more rigorous approach to the topic covered. Students will study equations and inequalities, graphing linear equations, solving systems of equations, polynomials, quadratic functions, rational expressions and basic trigonometry.

### Course Goals and Objectives

- ✓ Students solve equations in one variable.
- ✓ Students solve inequalities in one variable.
- ✓ Students graph linear equations.
- ✓ Students solve systems of linear equations.
- ✓ Students perform the basic operations with polynomials.
- ✓ Students graph quadratic functions.
- ✓ Students solve quadratic equations by factoring, quadratic formula, and completing the square.
- ✓ Students perform the basic operations with rational expressions.
- ✓ Students solve application problems involving the above skills.
- ✓ Students solve problems using trigonometric ratios and use trigonometric tables.
- ✓ Students solve relating to angles in standard position, special angles, and related angles.

## Algebra 2B

Algebra 2B completes the basic course work for college-bound students and prepares students for the more advanced courses in the college preparatory math program. Students study radicals and irrational numbers, solving quadratic equations, quadratic relations, logarithms, sequences and series, matrices, basic trigonometric relationships and identities, and permutations, combinations and probability.

### Course Goals and Objectives

- ✓ Students perform the basic operations with radicals and irrational numbers.
- ✓ Students identify relations as circles, parabolas, ellipses, and hyperbolas.
- ✓ Students perform the basic operations with logarithms
- ✓ Students solve problems involving arithmetic and geometric sequences and series.
- ✓ Students apply basic concepts of permutations, combinations, and probability.
- ✓ Students solve application problems involving the above skills.

**Note:** See *Mathematics Content Standards for California Public School, Kindergarten through Grade Twelve* for course Guidelines and Goals.