

Algebra I (Grade 9) (PACES 1097-1108)

Basic algebraic concepts (definitions, signs, and expressions) are introduced in a carefully structured way to make the learning material understandable. This curriculum includes principles for logically solving, transposing, and canceling algebraic equations. **Twelve DVDs reinforce this course.**

The student works with:

- Monomial and polynomial expressions.
- Algebraic addition, subtraction, multiplication, and division.
- Complex fractions: reducing, simplifying, and solving word problems.
- Algebraic graphs—linear equations, consistent, inconsistent, and dependent in word problems.
- Quadratic equations, factoring, positive and negative numbers, averages, percent's, interest, ratios, and proportions, and translating word problems to algebraic equations.
- The Pythagorean theorem.

Geometry (Grade 10) (PACES 1109-1120)

Prerequisite: Algebra I **Twelve DVDs reinforce this course.**

This course expands the deductive reasoning powers of the student as he reviews previously learned material and is introduced to new concepts.

The student learns:

- To reason logically and systematically.
- Properties and theorems and how to use them for solving problems—converse and construction, parallelograms, tangency, exterior angle; Hinge, Pythagorean, and regular polygon theorems.
- Types of shapes, angles, arcs, and chords, and learns to find the circumference and area.
- Tangents, secants—angles formed and intersecting within a circle.

Algebra II (Grade 11) (PACEs 1121-1132)

Prerequisite: Algebra I **Twelve DVDs reinforce this course.**

This advanced study in algebra includes parabolas, hyperbolas, permutations, logarithms, and matrices; operations with radicals and fractions; and solving equations. The approach is practical, helping the student use his reasoning abilities. The student learns to operate with:

- Real number axioms and applications.
- Radicals and complex numbers.
- Fractions and operations, equations and decimals.
- Equations—linear and graphs, quadratic solutions, relations and polynomial functions.
- Arithmetic and geometric sequences and series, and sentences with one variable.
- Multiplication of polynomials, factoring monomials, squares, groups, and open sentences.
- Computations, exponential functions, logarithms, and antilogarithms; and permutations, combinations, binomial expansions, and probability.
- Matrices and their properties, determinants of equations, and systems of equations.

Trigonometry (Grade 12) (PACES 1133–1138) 1/2 Credit

Prerequisite: Algebra I, Geometry, and Algebra II

Trigonometry is a six-PACE, interactive learning experience for the student. Through the use of a graphing calculator, the student is able to solve realistic problems about our universe.

The student learns to:

- Find unknown measurements involving triangles.
- Determine the values of the trigonometric functions for any angle.
- Establish and use trigonometric identities.
- Graph trigonometric functions with and without a graphing calculator.
- Use the inverse trigonometry functions to find angle measures.
- Solve equations involving the trigonometric functions.
- Graph functions in the polar plane.
- Perform operations with complex numbers.
- Recognize how trigonometry models our world.

This course reflects the use of a TI-83 Plus or TI-84 Plus graphing calculator.