



Summer Math Work (Grades 10-12)

During the first week of school the students will take a quiz assessing the math skills that they have retained through the summer.

Online Resources:

- <http://www.algebrahelp.com/> offers assistance on various algebra topics
- <https://www.khanacademy.org/> click on algebra and there are lessons on various algebra topics that are followed by practice problems
- www.google.com to search for skill-related videos on any of these topics.
- www.khanacademy.org to find specific math related topics with accompanying videos. Use www.wolframalpha.com to see step by step answers for specific questions you may have.

Entering Geometry

Skills needed:

Algebra

- Ratios and proportions
- Properties of exponents
- Write variable expressions
- Solve linear equations
- Solve systems of equations
- Lines in coordinate plane
- Coordinate plane
- Slope of lines
- Graph linear equation
- Equations of lines
- Perpendicular and parallel lines

Entering Algebra 2

Algebra 1 Skills needed to be Successful in Algebra 2

Simplifying Polynomial Expressions Objectives:

- Apply the appropriate arithmetic operations and algebraic properties needed to simplify an algebraic expression.
- Simplify polynomial expressions using addition and subtraction.
- Multiply a monomial and polynomial.

Solving Equations

- Objectives: The student will be able to:
- Solve multi-step equations.
- Solve a literal equation for a specific variable, and use formulas to solve problems.

Rules of Exponents

- Objectives: The student will be able to:
- Simplify expressions using the laws of exponents.
- Evaluate powers that have zero or negative exponents.

Binomial Multiplication Objectives:

- The student will be able to:
- Multiply two binomials.

Factoring

- Objectives: The student will be able to:
- Identify the greatest common factor of the terms of a polynomial expression.
- Express a polynomial as a product of a monomial and a polynomial.
- Find all factors of the quadratic expression $ax^2 + bx + c$ by factoring and graphing.

Radicals

- Objectives: The student will be able to:
- Simplify radical expressions.

Graphing Lines

- Objectives: The student will be able to:
- Identify and calculate the slope of a line.
- Graph linear equations using a variety of methods.
- Determine the equation of a line.

Entering Pre-Calculus

Tools of Algebra

- Define and use basic concepts and properties of real numbers, operations, and equalities.
- Solve and graph one-variable equations with/without absolute value.

Linear Relationships and Functions

- Define and specify relations and functions by verbal descriptions, lists, and tables
- Determine equations for specific functions and relations
- Recognize slope as rate of change of one variable in terms of another write and interpret a direct variation.

Quadratic Equalities and Functions

- Write quadratic functions in standard form
- Graph quadratic functions to get parabolas
- Identify axis of symmetry, intercepts and vertices of parabolas
- Solve expressions with radicals
- Solve quadratic equations by factoring, finding square roots, graphing, completing the square
- Identify and graph complex numbers
- Add, subtract, multiply and divide complex numbers

Radical Functions and Rational Exponents

- Add, subtract, multiply and divide radical expressions
- Rationalize denominators
- Simplify expressions with rational exponents
- Add, subtract, multiply and divide functions

Exponential and Logarithmic Functions

- Graph exponential functions
- Solve exponential and logarithmic equations

Entering Calculus H1

Radical Functions and Rational Exponents

- Add, subtract, multiply and divide radical expressions
- Rationalize denominators
- Simplify expressions with rational exponents
- Add, subtract, multiply and divide functions

Exponential and Logarithmic Functions

- Graph exponential functions
- Solve exponential and logarithmic equations

Trigonometry

- Trigonometric Ratios, Unit Circle
- Graphs of Trigonometric Functions
- Inverse Trigonometric Functions
- Trigonometric identities
- Solve trigonometric equations