

**MATH CURRICULUM SUMMARY**

The purpose of the Math Curriculum Summary is to present an overview of the Math Analysis & Honors curriculum. Parents are the intended audience of the Math Curriculum Summary

**Algebra Prerequisites**

- Function Terminology: domain, range, intercepts, notation
- Linear, quadratic, absolute value, rational, square root function review
- Graphing and Transformations, completing the square
- Piecewise Functions
- Symmetry (line and point)
- Operations with Complex Numbers \*\*Honors only

**Operations on Functions**

- Periodic functions with period and amplitude changes
- Sum, difference, product, and quotient of functions
- Composite functions
- Inverse functions

**Trigonometry**

- Introduce unit circle & circular functions
- Angles measurement in radians and degrees
- Identify & graph the 6 trig functions
- Transformations on the trig graphs
- Modeling periodic behavior
- Inverse trig functions
- Patterns and relationships (reciprocal, co-functions, identities)
- Simplifying trig expressions and proving identities
- Solving trig equations
- Introduce triangle trigonometry, right triangle definitions
- Develop law of sines, cosines, and formula for area of triangle
- Sum and difference formulas, double and  $\frac{1}{2}$  angle formula
- Polar coordinates (if time allows)

**Exponents and Logarithms**

- Review laws of exponents with integral and fractional exponents.
- Solve exponential equations
- Review exponential functions and applications to growth and decay
- Develop log function as inverse of exponential
- Evaluate logarithms
- Laws of logarithms: solving logarithmic equations
- Change of base law
- Natural log and “e”
- Solve exponential and logarithmic equations in real life situations

**Sequences, Series, and Limits**

- Define sequence through explicit and recursive definitions
- Arithmetic and geometric sequences and series
- Sigma notation
- Finite and infinite sums of geometric and arithmetic series
- Introduce infinite limits of arithmetic, geometric, polynomial and rational sequences
- Limits at a specific point \*\*Honors only
- Left and right hand limits \*\*Honors only
- Derivatives \*\*Honors only
- Slope of a curve \*\*Honors only
- Area under a curve \*\*Honors only

**Polynomial Equations & Functions**

- Synthetic Division
- Remainder and Factor Theorems
- Solve Polynomial Equations algebraically
- Graphing polynomial functions and listing their characteristics
- Rational Root Theorem
- Locater Theorem \*\*Regular only
- Graphing Calculator – Zeros, Maximums and Minimums
- Analyze Nature of Roots

**Rational Functions**

- Review of operations on rational expressions
- Identify rational functions,
- Domain and range with vertical & horizontal asymptotes
- Determine whether a function is continuous
- Removable discontinuities (holes)
- Find the limits of various functions

**Inequalities \*\*Regular Analysis only**

- Critical Point – interval test method for one variable inequalities (linear, absolute value, polynomial, rational)
- Graphing solution to one variable inequalities
- Two variable inequalities and systems

**Conics \*\*Regular Analysis only**

- Identify circles, parabolas, ellipses, and hyperbolas in standard and graphing form
- Sketch and identify critical features of each conic section
- Geometric definitions of each conic.

**Matrices \*\*Honors only**

- Use matrices to model routine and non routine problem situations
- Use matrices to organize and manipulate data, including matrix addition, subtraction, multiplication, and scalar multiplication
- Inverses
- Use matrices to solve systems of equations
- Use graphing calculator to work with matrices.

**Board Approved 6/2006**

**MATH ANALYSIS & HONORS  
GRADES 10-12**