EVERGREEN COMMUNITY CHARTER SCHOOL CURRICULUM

MATH

Course: Trigonometry/Pre-Calculus

Grade: 11, 12

Make sense of problems and persevere in solving them. Reason abstractly and quantitatively.
Construct viable arguments and critique the reasoning of others. Model with mathematics.
Use appropriate tools strategically. Attend to precision.
Look for and express regularity in repeated reasoning. Look for and make use of structure.

PA Core Standards	Materials	Methods/Assessment
2.1 Numbers and Operations • CC.2.1.F.1-7 2.2 Algebraic Concepts • CC.2.2.C.1-9 • CC.2.2.D.1-10 2.3 Geometry • CC.2.3.A.1-14 2.4 Measurement, Data, and Probability • CC.2.4.B.1-7	**Materials:** Algebra & Trigonometry, Sullivan and Sullivan, Pearson Prentice Hall, 2006 **Resources:** • PDE SAS portal: http://www.pdesas.org • Teacher generated/differentiated instruction resources and activities • http://www.khanacademy.org/ • Calculators • Math Counts activities • Pearson Success.net **Differentiation:** **Enrichment** • Leveled tests and quizzes • Self-paced **Remediation** • One on one • Quiz & test corrections • Accommodations • Adapted assignments • Extra time • Math Support • Notecard permitted for quizzes and tests	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Teacher Observation • Class Participation • Group Participation • Completion of assigned tasks • Quizzes • Summative Tests

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Assessment Anchors	Materials/Unit Objectives	Methods/Assessment
• M11.C.3.1 Calculate the distance and/or midpoint between 2 points on a number line or coordinate plane Relate slope to perpendicularity and/or parallelism • M11.D.3.2. Apply the formula for the slope of a line to solve problems Given the graph of the line, 2 points on the line, or the slope and a point on a line, write or identify the linear equation in point-slope, standard and/or slope-intercept form Compute the slope and/or y-intercept represented by a linear equation or graph • M11.D.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically Determine if a relation is a function given a set of points or a graph Identify the domain, range or inverse of a relation • M11.D.4 Match the graph of a given function to its table or equation	**Materials:** Algebra & Trigonometry, Sullivan and Sullivan, Pearson Prentice Hall, 2006 **Chapter 1 – Graphs, Equations, and Inequalities** • Use rectangular coordinates • Graph equations • Find equations and graphs of circles • Find equations of lines • Graph equations of lines • Find parallel and perpendicular equations of lines **Chapter 2 – Functions and their Graphs** • Determine whether a relation is a function • Analyze graphs of functions • Perform operations on Functions • Investigate and define properties of functions • Graph transformations of functions	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Teacher Observation • Class Participation • Group Participation • Completion of assigned tasks • Quizzes • Summative Tests

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Assessment Anchors	Materials/Unit Objectives	Methods/Assessment
• M11.D.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically Determine if a relation is a function given a set of points or a graph Identify the domain, range or inverse of a relation • M11.D.2.2 Add, subtract and/or multiply polynomial expressions Simplify algebraic fractions • M11.A.2.2 Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value Simplify/evaluate expressions involving multiplying with exponents, powers of powers, and powers of products • M11.A.3.1 Simplify/evaluate expressions using the order of operations to solve • M11.D.2.2 Simplify algebraic fractions • M11.D.4.1 Interpret and/or use linear, quadratic and/or exponential functions and their equations, graphs, or tables	**Materials:** Algebra & Trigonometry, Sullivan and Sullivan, Pearson Prentice Hall, 2006 **Chapter 3 – Polynomial and Rational Functions** • Identify quadratic functions and models • Identify polynomial functions • Identify and analyze the graphs of rational functions • Use the properties of rational functions • Solve polynomial and rational inequalities **Chapter 4 – Exponential and Logarithmic Functions** • Evaluate and find Composite functions • Evaluate and find Inverse functions • Evaluate and Graph Exponential Functions • Solve Exponential Functions • Define the properties of Logarithms • Evaluate logarithmic functions • Determine the domain and range of logarithmic functions • Solve and graph logarithmic equations and functions	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Teacher Observation • Class Participation • Group Participation • Completion of assigned tasks • Quizzes • Summative Tests

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Assessment Anchors	Materials/Unit Objectives	Methods/Assessment
• M11.A.1.1 Simplify square roots • M11.A.1.2 Find the Greatest Common Factor and/or the least Common Multiple for sets of monomials • M11.A.2.1 Solve problems using operations with rational numbers including rates and percents • M11.A.2.2 Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products • M11.A.3.1. Simplify/evaluate expressions using the order of operations to solve problems • M11.D.2.1 Solve compound inequalities and/or graph their solution sets on a number line Write, solve and/or apply a linear equation Solve quadratic equations using factoring • M11.D.2.2 Add, subtract and/or multiply polynomial expressions Factor algebraic expressions, including difference of squares and trinomials Simplify algebraic fractions • M11.A.1.1 Find the square root of an integer to the nearest tenth using either a calculator or estimation M11.A.1.1 Simplify square roots • M11.A.2.1 Identify and/or use proportional relationships in problem solving setting • M11.A.3.1. Simplify/evaluate expressions using the order of operations to solve problems	**Materials:** Algebra & Trigonometry, Sullivan and Sullivan, Pearson Prentice Hall, 2006 **Chapter 5 – Systems of Equations and Inequalities** • Solve linear equations • Solve quadratic equations • Solve quadratic equations in the complex number system • Solve radical equations • Solve inequalities • Solve equations and inequaliti4es involving absolute value • Solve applications involving interest **Chapter 6 – Trigonometric Functions** • Determine measurement of angles • Find values of right triangles • Compute the values of trig functions of acute angles • Use trig functions to find the measure of general angles • Investigate the unit circle • Sketch graphs of the six trigonometric functions • Apply general graphing techniques to trigonometric functions	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Teacher Observation • Class Participation • Group Participation • Completion of assigned tasks • Quizzes • Summative Tests

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• M11.A.3.2 Use estimation to solve problems • M11.B.2.1 Measure and/or compare angles in degrees • M11.C.1.1 Identify and/or use the properties of arcs, semicircles, inscribed angles and/or central angles • M11.C.1.4 Find the measure of a side of a right triangle using the Pythagorean Theorem		

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Assessment Anchors	Materials/Unit	Methods/Assessment
• M11.A.2.2 Simplify/evaluate expressions involving positive and negative exponents, roots and/or absolute value • M11.A.3.1 Simplify/evaluate expressions using the order of operations to solve problems • M11.B.2.1 Measure and/or compare angles in degrees • M11.C.1.2 Identify and/or use properties of triangles • M11.C.1.4 Find the measure of a side of a right triangle using the Pythagorean Theorem • M11.D.4.1 Match the graph of a given function to its table or equations • M11.A.1.3 Compare and/or order any real numbers • M11.A.3.1 Simplify/evaluate expressions using the order of operations to solve problems • M11.C.1.2 Identify and/or use properties of triangles • M11.C.1.4 Find the measure of a side of a right triangles using the Pythagorean Theorem	**Materials:** Algebra & Trigonometry, Sullivan and Sullivan, Pearson Prentice Hall, 2006 **Chapter 7 – Analytic Trigonometry** • Determine the inverse of the trigonometric functions • Verify Trigonometric identities • Use sum and difference formulas **Chapter 8 – Applications of Trigonometric Functions** • Apply Trigonometry to problem situations involving triangles • Use the Law of sines to solve oblique triangles • Use the Law of Cosines to solve oblique triangles • Find the area of triangles using formulas	**Methods:** • Lecture • Demonstration • Note-taking • Discussion • Practice **Assessment:** • Teacher Observation • Class Participation • Group Participation • Completion of assigned tasks • Quizzes • Summative Tests