

Platte #1 Curriculum Map: Algebra 3 (1 sem credit)

Unit of Study and Time	Essential Questions/Content	Objectives/ Learning Targets	Resources	Projects/Activities	Assessment	Standard *Bold=Assessed
Concurrent across all Units will be ACT practice and preparation. (18 weeks)	• PreAlgebra • Intermediate Algebra • Algebra • Coordinate Geometry • Plane Geometry • Trigonometry	1. Recognize common question structures and problem-solving patterns. 2. Apply a variety of mathematical and testing strategies to improve performance on timed tests.	A variety of online and printed ACT practice resources	Benchmarks Bellwork Questions added to quizzes Questions added to tests	August benchmark Quizzes Tests Dec/Jan benchmark	
Ch1 Functions and Graphs (2 weeks)	1. Rectangular Coordinates; Graphing Utilities 2. Graphs of Equations in 2 Variables 3. Solving Equations in 1 Variable 4. Lines 5. Circles	1. Use Distance and Midpoint formulas 2. By hand and with technology: graph equations, create tables, find intercepts, test for symmetry 3. Use technology to solve a 1-variable equation. 4. Calculate and interpret linear slope; find equations for lines, including horizontal and vertical, parallel, and perpendicular; use varied forms of linear equations (standard, point-slope, slope-intercept) 5. Write and recognize the general and standard forms for circle equations; graph circles by hand and with technology.	• <i>Precalculus, 4th Ed</i>, Sullivan Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	A.SSE.A A.SSE.B A.REI.H A.REI.K E.IF.A E.IF.C N.Q.C

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Unit 2: Ch3 Linear and Quadratic Functions and Their Graphs (2-3 weeks)	1. Functions 2.The Graph of a Function 3.Properties of Functions 4.Linear Functions and Models 5.Library of Functions; Piecewise-defined Functions 6.Graphing Techniques: Transformations 7.Math Models: Constructing Functions	1.Determine whether a relation is a function; find function value; find domain; perform operations on functions. 2.Identify the graph of a function; obtain important information about the function from its graph. 3.Determine even and odd identifiers in graphs and equations; determine increasing/decreasing, local extrema; find the average rate of change of a function. 4.Graph linear functions; work with linear applications; draw and interpret scatter diagrams; distinguish b/t linear and nonlinear relations; find the line of best fit; construct a linear model using direct variation. 5.Graph and identify characteristics of functions in the library of functions; graph piecewise-defined functions. 6.Graph functions by identifying horizontal and vertical shifts, compressions and stretches, and reflections about the x- or y-axis. 7.Construct and analyze functions.	<i>Precalculus, 4th Ed</i>, Sullivan - Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	<u>N.Q.C</u> <u>A.SSE.A</u> <u>A.SSE.B</u> <u>A.CED.G</u> <u>A.REI.K</u> <u>E.IF.A</u> <u>E.IF.B</u> <u>E.IF.C</u> <u>E.BF.D</u>

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Unit 3: Ch4 Polynomial and Rational Functions (3-4 weeks)	1. Quadratic Functions and Models 2. Polynomial Functions and Models 3. Properties of Rational Functions 4. Graph of a Rational Function; Inverse and Joint Variation 5. Polynomial and Rational Inequalities 6. Real Zeros of a Polynomial Function 7. Complex Zeros; Fundamental Theorem of Algebra	1. Graphs quadratics using transformations; identify vertex and axis of symmetry; graph quadratics using vertex, axis and intercepts; use extrema to solve applied quadratic problems; find the quadratic best fit. 2. Identify polynomial functions and their degree; graph polynomials using transformations; identify zeros of a polynomial and their multiplicity; analyze polynomial graphs; find the cubic best fit to data. 3. Find the domain, vertical and horizontal/slant asymptotes of a rational function. 4. Analyze the graph of a rational function; solve applied problems involving rational functions; construct a model using inverse variation, joint variation, and combined variation. 5. Solve polynomial inequalities algebraically and graphically; use Remainder, Factor, and Rational Zeros Theorems; find real zeros of polynomial functions; use Bounds on Zeros Theorem and Intermediate Value Theorem. 6. Use the Conjugate Pairs Theorem; find a polynomial equation with specified zeros; find complex zeros of a polynomial function.	<i>Precalculus, 4th Ed</i>, Sullivan Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	<u>NQ.C</u> <u>A.SSE.A</u> <u>A.SSE.B</u> <u>A.CED.G</u> <u>A.REI.H</u> <u>A.REI.K</u> <u>E.IF.A</u> <u>E.IF.B</u> <u>E.IF.C</u> <u>E.BF.D</u>

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Unit 4 Ch5 Exponential and Logarithmic Functions (3-4 weeks)	1. Composite Functions 2. One-to-One Functions 3. Exponential Functions 4. Logarithmic Functions 5. Properties of Logarithms 6. Log and Exp Equations 7. Modeling 8. Building Exponential, Logarithmic, and Logistic Models from Data	1. Form a composite function and find its domain. 2. Determine if a function is one-to-one; obtain the inverse of a function graphically or in equation form. 3. Evaluate and graph exponential functions; define the number e ; solve exp equations. 4. Change exp expressions to logarithmic expressions and vice versa; evaluate log expressions; determine the domain of a log function; graph log functions. 5. Use properties of logarithms to rewrite expressions 6. Solve log equation by using properties of logarithms; solve exponential equations using logarithms; solve log and exp equations using technology. 7. Determine future value of a lump sum of money; determine doubling or tripling time for investments. 8. find equations for populations that obey the law of uninhibited growth or the law of decay; use logistic models. 9. Use technology to fit an exponential, logarithmic or logistic function to data.	<i>Precalculus, 4th Ed</i>, Sullivan Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	N.Q.C A.SSE.A A.SSE.B A.CED.G A.REI.H A.REI.K E.IF.A E.IF.B E.IF.C E.BF.D E.LE.F

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Unit 5 Ch11 Systems of Equations and Inequalities (3-4 weeks)	1.Systems of Linear Equations: Substitution and Elimination 2.Systems of Linear Equations: Matrices 3.Systems of Linear Equations: Determinants 4.Matrix Algebra 5.Partial Fraction Decomposition 6.Systems of NonLinear Equations 7.Systems of Inequalities 8.Linear Programming	1. Solve systems by substitution and elimination; identify inconsistent systems; express dependent system solutions in terms of a single variable. 2. Write an augmented matrix for a linear system, and vice versa; perform row operations on a matrix; solve a linear system using an augmented matrix. 3. Evaluate 2x2 and 3x3 determinants and use Cramer' Rule to solve a linear system; know properties of determinants. 4. Perform operations on matrices; find the inverse of a matrix; solve a linear system using inverse matrices 5. Decompose a rational expression where the denominator has non-repeated or repeated linear factors, non-repeated or repeated irreducible quadratic factors. 6. Solve a nonlinear system using substitution and elimination. 7. Graph inequalities and systems of inequalities by hand and using technology. 8. Set up and solve linear programming problems.	<i>Precalculus, 4th Ed</i>, Sullivan Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	A.SSE.A A.SSE.B A.CED.G A.REI.K F.IF.B F.IF.C F.BF.D F.LE.F

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*Unit 6 Ch12 Sequences; Binomial Theorem Ch13 Counting and Probability (as time allows)	1. Sequences 2. Aritmetic Sequences 3. Geometric Sequences and Series 4. Binomial Theorem	1. Write the first few terms of a sequence; write a recursive formula; use summation notation; find the sum algebraically and using technology; solve annuity and amortization problems 2. Determine if a sequence is arithmetic; find a formula for an arithmetic sequence; find the sum of an arithmetic sequence. 3. Determine if a sequence is geometric; find a formula for a geometric sequence; find the sum of a geometric series. 4. Use the Binomial Theorem.	<i>Precalculus, 4th Ed</i>, Sullivan Sullivan, textbook and MathXL-generated practice, quizzes and tests.	Prepare for class: Complete the Are You Prepared questions to target needed review. Be attentive in class and keep organized class notes, section practice. Use Section Quizzes to target weaknesses and get help. Complete Chapter Review. Complete Chapter Assessment. Complete ACT	Summative Unit Test CFA (No retakes) Section Quiz Average (Retakes allowed w/ restrictions) Final Exam CFA Portfolio Unit content Benchmark	A.SSE.A A.CED.G. E.IF.C. F.BF.D