

MATH: Pre-Calc

Month	Unit	Concepts	Skills	Assessments
September	-Review of Key Advanced Algebra Topics -Start Functions and their Graphs	Number Systems Polynomials Factoring Rational and Complex Functions Solving Equations and Inequalities Graphing Function Classification	Factoring Methods Completing the Square Technology as a tool for investigations of solutions/nonsolutions Finding Intercepts Symmetry Injection, Surjection, Bijection Piecewise defined functions	Homework Quizzes Exam
October	-Functions and their Graphs -Polynomials and Rational Functions	“Critical Points” Parent Functions Function Compositions Regression Analysis Polynomials I.V.T, Rational Root Thm., Fund. Thm. of Algebra Rational Functions	Zeros, Mins,Maxs Intense Regression Analysis to include Residual investigations Sketching based on key components such as power, zeros etc. Long and Synthetic Division DeCartes Law of Signs Graphing complicated Rat. Functions without the use of technology	Homework Quizzes Exam
November	-Exponential and Logarithmic Functions	Function Theory with Root Analysis Exponential and Logarithmic Functions with various bases including 10 and e	Investigation of Sum/Product of the roots for nth degree polynomials Graphical/Algebraic Representations and solutions Properties, Change of Base Applications such as compounding interest and growth/decay Exponential/ Logarithmic Models	Homework Quizzes Exam

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December	-Trigonometry	Radian and Degree Representation Identities Graphing of all Trig. Graphs and their Inverse Graphs	Curve sketching via identification of various shifts, amplitude, period, frequency Angle of Elevation/Depression	Homework Quizzes Exam
January	-Trigonometry -Additional Trigonometry Topics	Trig Equations Sum/Difference of 2 Angles Double Angles, Half-Angles, Power-Reducing Formulas Law of Sines/Cosines Area of a Triangle	Solving on a restricted domain and an open domain Angle problems without formula cheat sheet Old approaches vs. New Approaches (Heron's Formula)	Homework Quizzes Exam
February	-Additional Trigonometry Topics -Matrices	Vectors Complex Trigonometric Form Matrices	Vectors in the Plane Region Decomposition, Projections Powers of a Complex Number DeMoivres Thm. Nth root Row Operations Solving systems with matrices Identity, Inverses Cramer's Rule	Homework Quizzes Exam
March	-Matrices -Conic Sections	Determinants Circle Parabola Ellipse	Using the Graphing Calculator Applications Minors and cofactors Terms Standard and general forms Given information find the facts Given the facts find the equation Completing the square	Homework Quizzes Exam

April	-Conic Sections	Hyperbola Parametric Functions Polar Graphing	Functional Graphing vs. Parametric Graphing and the Benefits/Drawbacks of each	Homework Quizzes Exam Project #1(Polar)
May	-Sequences and Series -Independent Research	Arithmetic Progressions Geometric Progressions Mathematical Induction Mathematical Investigation of unknown topics as related to their mathematician	Nth term formulas Word Problems Arithmetic Means Geometric Means Finites Sums Arithmetic and Geometric Infinite sums for Geometric Formal Mathematical proofs Writing a research paper	Homework Quizzes Exam Project #2 (mathematician)
June		Student Presentations of their Mathematicians Topics of Interest as time allows		