

Pacing Guide

Unit 1: Review of Functions and Quadratics

- 1.1 Introduction to Functions
- 1.2 Domain of a Function and Interval Notation
- 1.3 Range of a Function and Interval Notation
- 1.4 Composition of Functions
- 1.5 Inverse Functions
- 1.6 Introduction to Quadratic Functions
- 1.7 Graphing Quadratic Functions – Vertex Form
- 1.8 Solving Quadratic Equations with Square Roots
- 1.9 Solving Quadratics by Completing the Square
- 1.10 Converting to Vertex Form by Completing the Square
- 1.11 Graphing Quadratic Inequalities
- Unit 1 Review
- Unit 1 Test

Unit 1 Completion – 13 Days

Unit 2: Polynomials

- 2.1 Introduction to Polynomials
- 2.2 Finding a Polynomial Given the Roots
- 2.3 Dividing Polynomials Using Long Division
- 2.4 Dividing Polynomials Using Synthetic Division
- 2.5 Factor and Remainder Theorem
- 2.6 Location Principle and Multiplicity of Zeros

- 2.7 Rational Root Theorem
- 2.8 Complex Conjugate Root Theorem
- 2.9 Fundamental Theorem of Algebra
- 2.10 Graphing Polynomials
- Unit 2 Review
- Unit 2 Test

Unit 2 Completion – 12 Days

Unit 3: Rational Functions

- 3.1 Introduction to Rational Functions
- 3.2 Graphing Rational Functions
- 3.3 Graphing Rational Functions Part II
- 3.4 Slant Asymptotes
- 3.5 Parabolic Asymptotes
- 3.6 Multiplying and Dividing Rational Expressions
- 3.7 Solving Rational Equations
- Unit 3 Review
- Unit 3 Test

Unit 3 Completion – 9 Days

Unit 4: Exponential and Logarithmic Functions

- 4.1 Introduction to Exponential and Logarithmic Properties
- 4.2 Graphing Exponential Functions
- 4.3 Logarithmic Functions
- 4.4 Properties of Logarithms
- 4.5 The Exponential-Logarithmic Inverse Property

4.6 Natural Exponentials and Logarithms
4.7 Solving Exponential Equations
4.8 Solving Logarithmic Equations
4.9 Exponential and Logarithmic Models
Unit 4 Review
Unit 4 Test

Unit 4 Completion – 11 Days

Unit 5: Vectors

5.1 Introduction to Vectors
5.2 Vectors in Two Dimensions
5.3 Adding and Subtracting Vectors
5.4 Multiplying Scalars and Vectors
5.5 Vector Components
5.6 Vector Notation
5.7 Operations in Vector Notation
5.8 The Dot Product
Unit 5 Review
Unit 5 Test

Unit 5 Completion – 10 Days

Unit 6: Matrices

6.1 Introduction to Matrices
6.2 Basic Matrix Operations
6.3 Matrix Multiplication
6.4 Determinant of a 2×2 Matrix

- 6.5 Determinant of a 3×3 Matrix
- 6.6 Inverse of a Matrix
- 6.7 Elementary Row Operations and Augmented Matrices
- 6.8 Using Matrices to Solve 2×2 Systems
- 6.9 Using Matrices to Solve 3×3 Systems
- Unit 6 Review
- Unit 6 Test

Unit 6 Completion – 11 Days

Unit 7: Complex Numbers

- 7.1 Introduction to Complex Numbers
- 7.2 Adding and Subtracting Complex Numbers
- 7.3 Multiplying Complex Numbers
- 7.4 Dividing Complex Numbers
- 7.5 The Complex Plane
- 7.6 Modulus of Complex Numbers
- 7.7 Distance in the Complex Plane
- 7.8 Midpoint in the Complex Plane
- Unit 7 Review
- Unit 7 Test

Unit 7 Completion – 10 Days

Unit 8: Trigonometric Functions

- 8.1 Introduction to Trigonometric Functions
- 8.2 Radian Measure
- 8.3 Standard Position and Reference Angles

- 8.4 Special Triangles and Exact Ratios
- 8.5 Graphing the Sine and Cosine Functions
- 8.6 Graphing the Tangent and Cotangent Functions
- 8.7 Graphing the Secant and Cosecant Functions
- 8.8 Applications of Trigonometric Functions
- 8.9 Modelling Trigonometric Functions
- 8.10 Inverse Trigonometric Functions
- Unit 8 Review
- Unit 8 Test

Unit 8 Completion – 12 Days

Pre-Calculus Midterm

- Midterm Exam Review – 3 Days
- Midterm Exam – 1 Day

Midterm Completion – 4 Days

Unit 9: Analytic Trigonometry

- 9.1 Introduction to Analytic Trigonometry
- 9.2 Cofunction, Periodicity and Negative Angle Identities
- 9.3 Addition and Subtraction Identities
- 9.4 Double and Half-Angle Identities
- 9.5 Product to Sum Identities
- 9.6 Solving Trigonometric Equations Algebraically
- 9.7 Solving Trigonometric Equations with Identities
- Unit 9 Review

Unit 9 Test

Unit 9 Completion – 9 Days

Unit 10: Conic Sections

- 10.1 Introduction to Conic Sections
- 10.2 Parabolas
- 10.3 Parabolas Part II
- 10.4 Circles
- 10.5 Circles Part II
- 10.6 Ellipses
- 10.7 Ellipses Part II
- 10.8 Hyperbolas
- 10.9 Hyperbolas Part II
- 10.10 Solving Non-Linear Systems
- 10.11 Parametric Equations
- 10.12 Parametric Equations of Conic Sections
- Unit 10 Review
- Unit 10 Test

Unit 10 Completion – 14 Days

Unit 11: Polar Coordinates

- 11.1 Introduction to Polar Coordinates
- 11.2 Converting Rectangular to Polar Coordinates
- 11.3 Converting Polar to Rectangular Coordinates
- 11.4 Polar Equations and Graphs
- 11.5 Eccentricity of Conic Sections

11.6 Polar Equations of Conic Sections
11.7 Complex Numbers in Polar Notation
11.8 Multiplication and Division with Polar Notation
11.9 DeMoivre's Theorem
Unit 11 Review
Unit 11 Test

Unit 11 Completion – 11 Days

Unit 12: Sequences and Series

12.1 Introduction to Sequences and Series
12.2 Sequences and Series
12.3 Arithmetic Sequences
12.4 Arithmetic Series
12.5 Geometric Sequences
12.6 Finite Geometric Series
12.7 Infinite Geometric Series
12.8 Permutations and Combinations
12.9 Pascal's Triangle
12.10 Binomial Theorem
Unit 12 Review
Unit 12 Test

Unit 12 Completion – 12 Days

Unit 13: Introduction to Calculus

13.1 Introduction to Calculus
13.2 Limits and Continuity

- 13.3 Limits Involving Infinity
- 13.4 Slope of a Tangent Line
- 13.5 The Power Rule
- 13.6 The Product and Quotient Rules
- 13.7 The Chain Rule
- 13.8 Applications of Derivatives
- 13.9 Antiderivatives
- 13.10 Integrals and the Area Under a Curve
- Unit 13 Review
- Unit 13 Test

Unit 13 Completion – 12 Days

Pre-Calculus Final Exam

- Final Exam Review – 5 Days
- Final Exam – 1 Day

Final Exam Completion – 6 Days

Note: One day is allotted for each lesson, unit test and unit review.

Total: 156 Days

31.2 five-day weeks or 39 four-day weeks