Wayland High School

Mathematics Department
Intro Pre-Calculus
Curriculum Guide

Unit 1: Linear and Quadratic Functions

- Slope
- Graphing Lines
- Equations of Lines
  - Slope-Intercept Form
  - Point-Slope Form
- Factoring
- Factoring and Graphing Quadratics

Unit 2: Domain and Range, Inequalities, Transformations

- Domain (graphically)
- Range (graphically)
- Interval Notation
- Solving Quadratic Inequalities by Graphing
- Graphing Quadratic Transformations
- Graphing Radical Transformations

Unit 3: Composition and Domain

- Composition with Numbers (Charts, Graphs)
- Composition with Expressions
- Domain of Rational Functions (algebraically)
- Domain of Radical Functions (algebraically)
- Domain with Compositions

Unit 4: Polynomial Functions

- End Behavior
- Sketch a Graph from Factored Form
- Factor First, then Graph
- Writing a Factored-Form Equation for a Graph
- Factoring and Synthetic Division

Unit 5: Complex Numbers

- Write a Number in a + b*i* Form

- Add, Subtract, Multiply, and Divide Complex Numbers
- Powers of *i*
- Plotting Complex Numbers in the Complex Plane
- Finding all Zeros using the Quadratic Formula
- Matching Graphs and Equations using Zeros
- Writing Equations Given Zeros

Unit 6: Rational Functions
- Arithmetic: Simplifying and Solving Rational Equations/Expressions
- Graphing: Lines and Parabolas with RD
- Graphing: HA, VA, x-int, y-int, RD (No Slant Asymptotes)
- Domain
- Solving Rational Inequalities Graphically

Unit 7: Exponentials
- Properties of Exponents
- Solving Equations with Common Bases
- Graphing
- Writing Equations of Graphs
- Review of Inverses

Unit 8: Logarithms
- Rewriting Exponents and Logs
- Solving Logarithmic Equations (no calculator)
- Graphing Logarithmic Equations
- Log Properties
- Solving Logarithmic Equations (calculator)

Unit 9: Exponential Modeling
- Exponential Growth and Decay Word Problems
- Compound Interest Word Problems

Unit 10: Triangle Trigonometry
- SOH CAH TOA
- Solving Right Triangles for Sides and Angles
- Application Problems: Angle of Elevation and Depression
- Solving for Missing Sides and Angles using the Law of Sines
- Solving for Missing Sides and Angles using the Law of Cosines

Unit 11: Unit Circle
- Angles in Standard Position
- Coterminal Angles
- Reference Angles
- Evaluating Trig. Functions using Special Rights and the Unit Circle (ASTC)
- Reciprocal Functions (if time allows)

Unit 12: Statistics/Probability

- Basic Probability
- Combinations and Permutations

Unit 13: Sequences (if time allows)

- Arithmetic Sequences
- Geometric Sequences