Wayland High School

Mathematics Department
Intro Algebra 2
Curriculum Guide

Unit 1: Linear Functions
- Write a linear equation in slope-intercept form and point-slope form
- Graph a linear equation in slope-intercept form and point-slope form
- Graph a linear equation given in any form
- Determine x and y intercepts of a linear equation
- Calculate slope from two points, from a graph, from an equation
- Recognizing parallel and perpendicular slopes
- Graphing/writing equations of vertical and horizontal lines
- Write and apply direct variation equations
- Solving linear equations - including proportions
- Solving literal equations
- Write, solve, and graph absolute value equations and inequalities in 1 variable
- Write, solve, and graph (compound) linear inequalities in 1 variable

Unit 2: Functions
- Definition of a function and a relation
- Determining if a relation is a function given a graph or ordered pairs
- Evaluating a function using function notation given either an equation or a graph
- Determining the domain and range of a function
- Finding the inverse of a relation or a function
- Describe the transformations from parent function given an equation
- Graph/write linear piecewise functions

Unit 3: Quadratics
- Define/identify/graph quadratic functions (vertex, intercept & standard form)
- Factoring quadratics (common factors, 3 term quadratics, diff. of squares)
- Writing equations from coordinates and graphs (vertex & intercept form)
- Completing the square to convert from standard to vertex form
- Solving quadratics equations using factoring, completing the square and the quadratic formula
- Using the discriminant to determine the number of real roots of a quadratic

Unit 4: Polynomials
- Definite polynomial, include vocab: degree, number of terms, leading coefficient
- Graphing polynomial functions from factored form
- Factoring polynomial functions (common factor, grouping)
- Degree, end behavior (arrow notation)
- Using a graph to determine local max/min, increasing and decreasing intervals

Unit 5: Systems of Equations & Systems of Inequalities
- Algebraic and graphical representations of systems
- Solving linear and non-linear systems using substitution, elimination, and graphing
- Graphing linear inequalities
- Graphing systems of linear inequalities

Unit 6: Exponents & Radicals
- Simplify and evaluate expressions involving exponents, including negative and rational powers
- Simplifying radical expressions and rationalizing the denominator
- Solve radical equations: identifying extraneous solutions
- Graphing radical functions
- Simplifying radicals
- Operations with radicals

Unit 7: Exponentials and Logarithms
- Writing an equation to fit the function
- Using $y = a(b)^x$ in situational word problems to solve growth and decay problems
- Vertical and horizontal stretches
- Reflections
- Graphing rational functions
- Removable discontinuities

Unit 8: Sequences
- Arithmetic and geometric formulas
- Solving for the nth term
- Fill in the missing terms
- Recursive Formulas
- Sigma Notation

Unit 8: Statistics
- Finding mead, mode, median given stemplot data
- Creating box plots and stemplots
- Reading a histogram
- Finding the line of best fit and estimating r values
- Making predictions

Unit 9: Matrices
- Define a matrix
- Operations: adding, subtracting, multiplying, and dividing
- Use matrices to solve word problems