Whitehall-Coplay School District Syllabus

Course Title: Honors Algebra 2

DESCRIPTION OF COURSE: Students will learn and understand the concepts of relations, functions, and graphs of linear and quadratic equations and how to apply these concepts to the real world. They will understand the many forms of factoring and how it is related to solving polynomial equations. Students will know and understand the conic sections in addition to exponential and logarithmic functions. Individually or in small groups, students will utilize the graphing calculator to analyze, discuss, and solve problems. Achievement will be demonstrated through tests, quizzes, homework assignments, graphing calculator exercises, activity sheets, projects, and performance assessments. Students are responsible for completing a summer assignment for this course before the school year begins. Students will take the Honors Algebra 2 final exam at the end of the course.

REQUIRED TOPICS OF STUDY	SUGGESTED INSTRUCTIONAL TIME	STANDARDS/ELIGIBLE CONTENT
paring for Advanced Algebra	ays	2.1.HS.F.2,3,4,5 ; CC.2.2.HS.D.8,9; A1.1.1.1.1; A2.1.3.2.2
ear Functions and Systems	ays	2.2.HS.C.1,2,3,6 ; CC.2.2.HS.D.1,2; CC.2.2.HS.D.7
adratic Functions and Equations	days	2.2.HS.C.5; CC.2.2.HS.D.10; CC.2.4.HS.B.2,3; A1.1.2.2.2; A1.1.3.2.2; A1.1.1.1.1
gression	ays	2.1.HS.F.5,6,7
ynomial Functions	days	2.1.HS.F.5,6,7; CC.2.2.HS.C.6; A1.1.1.5.2; A1.1.1.1.2; A2.1.1.1.1,2; A2.1.1.1.2,2; A2.2.1.1.4
ph Behavior	ays	2.2.HS.D.1,2,3,5,6
ional Functions	days	2.2.HS.C.4; A2.1.2.1.1,2,3; CC.2.1.HS.F.1,4
ional Exponents and Radical Functions	days	2.2.HS.C.4; A2.1.2.1.1,2,3; CC.2.1.HS.F.1,4
onential and Logarithmic Functions	days	2.2.HS.C.5; CC.2.2.HS.D.6; A2.1.1.2.1.1,2,3,4; A2.2.2.1.1,2,3,4; A2.2.1.1.1,2,3; A2.1.2.1.1,4
gonometric Functions, Equations, and Identities	days	2.3.HS.A.3, CC.2.3.HS.A.7, CC.2.3.HS.A.14
hic Sections and Sequences	ays	2.2.HS.C.5; CC.2.2.HS.D.6; A2.1.1.2.1.1,2,3,4; A2.2.2.1.1,2,3,4; 2.1.1.1,2,3; A2.1.2.1.1,4

Revised: 1/2026

RESOURCES: envision Algebra 2, Savvas Learning Company 2018

Revised: 1/2026

Whitehall-Coplay School District Syllabus

Course Title: CP Algebra 2

DESCRIPTION OF COURSE: Students will learn the set of complex numbers and its use in expressions, equations, functions, and graphs. They will understand how to simplify expressions and how to graph linear, quadratic, exponential, polynomial, rational, and radical equations. Also, they will learn how to represent these solutions in graphic form and practice general procedures applicable to problem situations. Working individually with a partner or in small groups, students will demonstrate their knowledge by applying appropriate skills. In addition, students will hone their graphing calculator skills to solve more complex problems. Assessments will include activities, projects, oral presentations, quizzes, and tests requiring problem learning skills. Students will take the Algebra 2 final exam at the end of the course.

REQUIRED TOPICS OF STUDY	SUGGESTED INSTRUCTIONAL TIME	STANDARDS/ELIGIBLE CONTENT
Tools of Algebra	15 days	CC 2.2 HS C1, CC 2.2 HS C2, CC 2.2 HS C3, CC 2.2 HS C6, CC 2.1 HS D1, CC 2.1 HS D2, CC 2.1 HS D3, CC 2.1 HS D5, CC 2.1 HS D6, CC 2.2 HS D7, CC 2.2 HS D8, CC 2.2 HS D9, CC 2.2 HS D10, CC 2.1 HS F1
Linear Functions and Systems	5 days	CC 2.2 HS C1, CC 2.2 HS C2, CC 2.2 HS C3, CC 2.2 HS C5, CC 2.2 HS C6, CC 2.1 HS D1, CC 2.2 HS D7, CC 2.2 HS D9, CC 2.2 HS D10
Quadratic Functions	30 days	CC 2.1 HS D1, CC 2.1 HS D2, CC 2.1 HS D3, CC 2.1 HS D4, CC 2.1 HS D5, CC 2.1 HS D6, CC 2.1 HS F1, CC 2.1 HS F6, CC 2.1 HS F7
Polynomial Functions	10 days	CC 2.1 HS D1, CC 2.1 HS D2, CC 2.1 HS D3, CC 2.1 HS D4, CC 2.1 HS D5, CC 2.1 HS D6, CC 2.1 HS F1
Radical Functions and Rational Exponents	10 days	CC 2.2 HS C1, CC 2.2 HS C6, CC 2.2 HS D1, CC 2.2 HS D2, CC 2.2 HS D8, CC 2.1 HS F1
Rational Functions	7 days	CC 2.1 HS D1, CC 2.1 HS D2, CC 2.1 HS D3, CC 2.1 HS D4, CC 2.1 HS D5, CC 2.1 HS D6, CC 2.1 HS F1
Exponential and Logarithmic Functions	8 days	CC 2.2 HS C1, CC 2.2 HS C3, CC 2.2 HS C5, CC 2.2 HS C6, CC 2.2 HS D2, CC 2.2 HS D8
Conic Sections	5 days	CC 2.3 HS A10, CC 2.2 HS C1, CC 2.1 HS D1

Revised: 1/2026

RESOURCES: enVision (Savvas) Algebra 2 (2018), TI-84 Graphing Calculator

Revised: 1/2026

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 0:
Tools of Algebra

Standards:
CC 2.2 HS C1 Use the concept and notation of functions to interpret and apply them in terms of their context.
CC 2.2 HS C2 Graph and analyze functions and use their properties to make connections between the different representations.
CC 2.2 HS C3 Write functions or sequences that model relationships between two quantities.
CC 2.2 HS C5 Construct and compare linear, quadratic and exponential models to solve problems.
CC 2.2 HS C6 Interpret functions in terms of the situation they model.
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context
CC 2.1 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.1 HS D3 Extend the knowledge of arithmetic operations and apply to polynomials.
CC 2.1 HS D5 Use polynomials identities to solve problems.
CC 2.1 HS D6 Extend the knowledge of rational functions to rewrite in equivalent forms.
CC 2.2 HS D7 Create and graph equations or inequalities to describe numbers or relationships.
CC 2.2 HS D8 Apply inverse operations to solve equations or formulas for a given variable.
CC 2.2 HS D9 Use reasoning to solve equations and justify the solution method.
CC 2.2 HS D10 Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.
CC 2.1 HS F1 Apply and extend the properties of exponents to solve problems with rational exponents.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers?
How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?

Revised: 1/2026

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content
20 days	Polynomial and Rational Expressions Equations and Inequalities Functions	Perform arithmetic operations on polynomials. Rewrite rational expressions. Simplify/factor expressions involving polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Determine how a change in one variable relates to a change in a second variable. Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model.	absolute value algebraic expressions compound inequality constraint empty set (H) equation extraneous solution formula infinity interval notation intersection open sentence order of operations set-builder notation (H) solution union (H) variables slope-intercept form point-slope form	*Supplemental Material on the following topics:* *Order of Operations* *Solving Equations and Inequalities* *Solving Absolute Value Equations and Inequalities* *Interval Notation* *Solving Systems of Equations Algebraically* *Graphing Linear and Absolute Value Equations/Inequalities* *Graphing Systems of Linear Equations/Inequalities* enVision (Savvas) Algebra 2 Textbook Sections 1.5 Solving Equations and Inequalities by Graphing 1.6 Linear Systems 1.7 Solving Linear Systems Using Matrices Combination of shared activities, quizzes, assessments.	A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots. A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products. A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation A2.1.3.1.4 Write, solve and/or apply linear or exponential growth or decay

		Create and/or analyze functions using multiple representations (graph, table, and equation). Create a function and/or sequence that model a relationship between two quantities. Construct and compare linear, quadratic, exponential, and logarithmic models to solve problems.	parallel perpendicular dilation family of graphs parent function reflection translation linear inequality break-even point consistent dependent elimination method inconsistent independent substitution method ordered triple absolute value function greatest integer function (H) piecewise-defined function (H)	Combination of IXL, Delta Math	A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation). A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions

			step function (H) bounded (H) feasible region (H) optimize (H) unbounded (H) coefficient matrix (H) constant matrix (H) Cramer's Rule (H) determinant (H) diagonal rule (H) dimensions (H) identity matrix (H) inverse matrices (H) matrix (H) matrix equation (H) scalar (H) scalar multiplication (H) variable matrix (H)		

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 1:
Linear Functions and Systems

Standards:
CC 2.2 HS C1 Use the concept and notation of functions to interpret and apply them in terms of their context.
CC 2.2 HS C2 Graph and analyze functions and use their properties to make connections between the different representations.
CC 2.2 HS C3 Write functions or sequences that model relationships between two quantities.
CC 2.2 HS C5 Construct and compare linear, quadratic and exponential models to solve problems.
CC 2.2 HS C6 Interpret functions in terms of the situation they model.
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context
CC 2.2 HS D7 Create and graph equations or inequalities to describe numbers or relationships.
CC 2.2 HS D9 Use reasoning to solve equations and justify the solution method.
CC 2.2 HS D10 Represent, solve and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers?
How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content
5 days	Functions	Perform arithmetic operations on polynomials. Simplify/factor expressions involving polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Determine how a change in one variable relates to a change in a second variable.. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model. Create and/or analyze functions using multiple representations (graph, table, and equation).	average rate of change compression interval notation maximum minimum piecewise-defined function reflection set-builder notation [H] step function stretch transformation translation zero of a function	enVision (Savvas) Algebra 2 Textbook Sections 1.1 Key Features of Functions 1.2 Transformations 1.3 Piecewise-Defined Functions Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots. A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products. A2.1.3.1.4 Write, solve and/or apply linear or exponential growth or decay A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable

		Create a function and/or sequence that model a relationship between two quantities. Construct and compare linear, quadratic, exponential, and logarithmic models to solve problems.			A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation). A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 2:
Quadratic Functions

Standards:
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context
CC 2.1 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.1 HS D3 Extend the knowledge of arithmetic operations and apply to polynomials.
CC 2.1 HS D4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.
CC 2.1 HS D5 Use polynomials identities to solve problems.
CC 2.1 HS D6 Extend the knowledge of rational functions to rewrite in equivalent forms.
CC 2.1 HS F1 Apply and extend the properties of exponents to solve problems with rational exponents.
CC 2.1 HS F6 Extend the knowledge of arithmetic operations and apply to complex numbers.
CC 2.1 HS F7 Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Patterns exhibit relationships that can be extended, described, and generalized.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.
Data can be modeled and used to make inferences.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers?
How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?
What does it mean to estimate or analyze numerical quantities?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content

Revised: 1/2026

30 days	Complex Number System Polynomial and Rational Expressions Equations and Inequalities Functions	Perform arithmetic operations on polynomials. Simplify/factor expressions involving polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Determine how a change in one variable relates to a change in a second variable. Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model. Create and/or analyze functions using multiple representations (graph, table, and equation).	quadratic inequality (H) axis of symmetry completing the square complex conjugates complex number conjugates discriminant factored form imaginary unit like radical expressions maximum value minimum value parabola quadratic equation Quadratic Formula quadratic function rationalizing the denominator Square Root Property standard form vertex vertex form	enVision (Savvas) Algebra 2 Textbook Sections 2.1 Vertex Form of a Quadratic Function 2.2 Standard Form of a Quadratic Function 2.3 Standard Form of a Quadratic Function 2.4 Complex Numbers 2.5 Completing the Square 2.6 Quadratic Formula 2.7 Linear-Quadratic Systems 3.2 Adding, Subtracting, and Multiplying Polynomials Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function A2.2.2.1.3 Determine, use and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential or logarithmic function. A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation) A2.1.3.1.1 Write and/or solve quadratic equations A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative

		Create a function and/or sequence that model a relationship between two quantities. Create new functions from existing functions (transformations and/or inverses of functions). Construct and compare linear, quadratic, exponential, and logarithmic models to solve problems. Represent and/or use imaginary numbers in equivalent forms. Simplify/evaluate expressions involving imaginary numbers. Perform arithmetic operations and apply to com plex numbers. Understand the relationship between zeros and factors of polynomials. Rewrite rational expressions.	zero		exponents and/or roots. A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents A2.1.2.2.1 Factor algebraic expressions, including difference of squares and trinomials A2.1.3.1.1 Write and/or solve quadratic equations A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function A2.2.2.1.2 Create, interpret and/or use the equation, graph or table of

					an exponential or logarithmic function A2.2.2.1.3 Determine, use and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential or logarithmic function. A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation). A2.1.1.1.1 Simplify square roots in terms of i A2.1.1.2.1 Add and subtract complex numbers A2.1.1.2.2 Multiply and divide complex numbers A2.1.2.1.3

					Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products. A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 3:
Polynomial Functions

Standards:
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context
CC 2.1 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.1 HS D3 Extend the knowledge of arithmetic operations and apply to polynomials.
CC 2.1 HS D4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.
CC 2.1 HS D5 Use polynomials identities to solve problems.
CC 2.1 HS D6 Extend the knowledge of rational functions to rewrite in equivalent forms.
CC 2.1 HS F1 Apply and extend the properties of exponents to solve problems with rational exponents.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content
11 Days	Polynomial and Rational Expressions Equations and Inequalities Functions	Perform arithmetic operations on polynomials. Understand the relationship between zeros and factors of polynomials. Simplify/factor expressions involving polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model. Construct and compare linear, quadratic, exponential, and logarithmic models to solve problems.	degree of a polynomial end behavior polynomial in one variable leading coefficient polynomial function power function quadratic form prime polynomials turning points relative maximum relative minimum extrema location principle synthetic division Binomial Theorem Remainder Theorem multiplicity of a zero even function odd function	*Supplemental Material on the following topics:* *Classify and Model Data* *Factoring with a Quadratic Pattern* *Solving by Factoring* enVision (Savvas) Algebra 2 Textbook Sections 3.7 Transformations of Polynomial Functions 3.1 Graphing Polynomial Functions 3.3 Polynomial Identities 3.4 Dividing Polynomials 3.5 Zeros of Polynomial Functions Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function A2.2.2.1.3 Determine, use and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential or logarithmic function. A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation).

			constant linear quadratic cubic quartic quintic monomial binomial trinomial sum/difference of cubes quadratic pattern		A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 5:
Rational Exponents & Radical Functions

Standards:
CC 2.2 HS C1 Use the concept and notation of functions to interpret and apply them in terms of their context.
CC 2.2 HS C6 Interpret functions in terms of the situation they model.
CC 2.2 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context.
CC 2.2 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.2 HS D8 Apply inverse operations to solve equations or formulas for a given variable.
CC 2.1 HS F1 Apply and extend the properties of exponents to solve problems with rational exponents

Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content
10 Days	Polynomial and Rational Expressions Equations and Inequalities	Perform arithmetic operations on polynomials.	composition of functions conjugates	*Supplemental Material on the following topics:*	A2.1.3.1.2 Solve equations involving rational

	Functions	Understand the relationship between zeros and factors of polynomials. Simplify/factor expressions involving polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model.	extraneous solutions index inverse function inverse relation like radical expressions *n*th root principal root radical equation radical function radical inequality radical sign radicand rationalizing the denominator square root function square root inequality	*Exponent Properties* enVision (Savvas) Algebra 2 Textbook Sections 5.1 nth Roots, Radical Expressions, and Rational Exponents 5.2 Properties of Exponents and Radicals 5.4 Solving Radical Equations 5.5 Function Operations 5.6 Inverse Relations and Functions 5.3 Graphing Radical Functions Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	and/or radical expressions A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots. A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products. A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents A2.1.3.1.1 Write and/or solve quadratic equations A2.1.3.1.2 Solve equations

					involving rational and/or radical expressions A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 4:
Rational Functions

Standards:
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context
CC 2.1 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.1 HS D3 Extend the knowledge of arithmetic operations and apply to polynomials.
CC 2.1 HS D4 Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.
CC 2.1 HS D5 Use polynomials identities to solve problems.
CC 2.1 HS D6 Extend the knowledge of rational functions to rewrite in equivalent forms.
CC 2.1 HS F1 Apply and extend the properties of exponents to solve problems with rational exponents.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers? How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What makes a tool and/or strategy appropriate for a given task?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content

Revised: 1/2026

7 Days	Polynomial and Rational Expressions Equations and Inequalities Functions	Perform arithmetic operations on polynomials. Simplify/factor expressions involving polynomials. Simplify/evaluate expressions involving imaginary numbers. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems. Use and/or explain reasoning while solving equations, and justify the solution method. Determine how a change in one variable relates to a change in a second variable. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model.	rational expression complex fraction rational equation asymptote	*Supplemental Material on the following topics:* *Factoring Expressions and Rational Numbers* enVision (Savvas) Algebra 2 Textbook Sections 4.3 Multiplying and Dividing Rational Expressions 4.4 Adding and Subtracting Rational Expression 4.5 Solving Rational Equations Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots. A2.1.2.2.1 Factor algebraic expressions, including difference of squares and trinomials A2.1.2.2.2 Simplify rational algebraic expressions A2.1.3.1.1 Write and/or solve quadratic equations A2.1.3.1.2 Solve equations involving rational and/or radical expressions A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.1.1.4 Identify and/or determine the characteristics of an exponential,

					quadratic, or polynomial function

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 5:
Exponential and Logarithmic Functions

Standards:
CC 2.2 HS C1 Use the concept and notation of functions to interpret and apply them in terms of their context.
CC 2.2 HS C3 Write functions or sequences that model relationships between two quantities.
CC 2.2 HS C5 Construct and compare linear, quadratic and exponential models to solve problems.
CC 2.2 HS C6 Interpret functions in terms of the situation they model.
CC 2.2 HS D2 Write expressions in equivalent forms to solve problems.
CC 2.2 HS D8 Apply inverse operations to solve equations or formulas for a given variable.

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers?
How can mathematics support effective communication?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model and/or analyze mathematical situations?
What does it mean to estimate or analyze numerical quantities?
What makes a tool and/or strategy appropriate for a given task?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content
8 Days	Polynomial and Rational Expressions	Create and/or solve equations (including literal,	asymptote	enVision (Savvas) Algebra 2 Textbook Sections	A2.1.2.1.2 Simplify/evaluate

	Equations and Inequalities Functions	polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model. Create and/or analyze functions using multiple representations (graph, table, and equation). Create a function and/or sequence that models a relationship between two quantities. Create new functions from existing functions (transformations and/or inverses of functions). Construct and compare linear, quadratic, exponential, and logarithmic models to solve problems.	Change of Base Formula common logarithm compound interest decay factor exponential decay exponential equation exponential function exponential growth exponential inequality growth factor logarithm logarithmic equation logarithmic function logistic growth model natural base, *e* natural base exponential function natural logarithm rate of continuous decay rate of continuous growth	6.1 Key Features of Exponential Models 6.2 Exponential Models 6.3 Logarithms 6.4 Logarithmic Functions 6.5 Properties of Logarithms 6.6 Exponential and Logarithmic Equations Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	expressions involving positive and negative exponents and/or roots. A2.1.2.1.3 Simplify/evaluate expressions involving multiplying with exponents, powers of powers and powers of products. A2.1.2.1.4 Simplify or evaluate expressions involving logarithms and exponents A2.1.3.1.3 Write and/or solve a simple exponential or logarithmic equation A2.1.3.1.4 Write, solve and/or apply linear or exponential growth or decay A2.1.3.2.1 Determine how a change in one variable relates to a change in a second variable

					A2.1.3.2.2 Use algebraic processes to solve a formula for a given variable A2.2.1.1.3 Determine the domain, range or inverse of a relation A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function A2.2.2.1.2 Create, interpret and/or use the equation, graph or table of an exponential or logarithmic function A2.2.2.1.3 Determine, use and/or interpret minimum and maximum values over a specified interval of a graph of a polynomial, exponential or logarithmic function.

					A2.2.2.1.4 Translate a polynomial, exponential or logarithmic function from one representation to another (graph, table and equation). A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions

WHITEHALL HIGH SCHOOL CURRICULUM MAP

Course Name: Algebra II
Course Number: 40410

Unit 9:
Conic Sections

Standards:
CC 2.3 HS A10 Translate between the geometric description and the equation for a conic section.
CC 2.2 HS C1 Use the concept and notation of functions to interpret and apply them in terms of their context.
CC 2.1 HS D1 Interpret the structure of expressions to represent a quantity in terms of its context

Big Idea(s):
Mathematical relationships among numbers can be represented, compared, and communicated.
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.
Numerical quantities, calculations, and measurements can be estimated or analyzed by using appropriate strategies and tools.
Mathematical relations and functions can be modeled through multiple representations and analyzed to raise and answer questions.

Essential Question(s):
How is mathematics used to quantify, compare, represent, and model numbers?
How can mathematics support effective communication?
How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations?
How is mathematics used to quantify, compare, represent, and model numbers?
How are relationships represented mathematically?
How can expressions, equations and inequalities be used to quantify, solve, model, and/or analyze mathematical situations?

Number of Instructional Days	Concepts	Competencies and Skills	Key Vocabulary	Materials, Resources, Activities, Technology, Literacy Strategies	Eligible Content

5 Days	Polynomial and Rational Expressions Equations and Inequalities Functions	Perform arithmetic operations on polynomials. Create and/or solve equations (including literal, polynomial, rational, radical, exponential, and logarithmic) both algebraically and graphically. Use and/or explain reasoning while solving equations, and justify the solution method. Use exponents, roots, and/or absolute values to represent equivalent forms or to solve problems. Use the concept and notation of function to interpret and apply them in terms of their context. Interpret functions in terms of the situations they model. Create and/or analyze functions using multiple representations (graph, table, and equation). Create a function and/or sequence that models a relationship between two quantities. Create new functions from existing functions	center (circle) center (ellipse) circle conjugate axis constant difference constant sum co-vertices (hyperbola) co-vertices (ellipse) directrix ellipse foci (hyperbola) foci (ellipse) focus hyperbola latus rectum major axis minor axis parabola radius transverse axis vertices (hyperbola)	enVision (Savvas) Algebra 2 Textbook Sections 9.1 Parabolas 9.2 Circles 9.3 Ellipses 9.4 Hyperbolas Combination of shared activities, quizzes, assessments. Combination of IXL, Delta Math	N.A.

		(transformations and/or inverses of functions).	vertices (ellipse)		