Danville Area School District
Course Overview and Scope and Sequence

Course Title: Keystone Algebra 2
Content Area: Math
Grade Level:
Date Developed: June 2023

COURSE OVERVIEW: This course is the last of three Algebra courses. This course is aligned to the Pennsylvania Keystone Assessment Anchors, focuses on complex numbers, solving/graphing quadratic equations, solving/graphing exponential and logarithmic equations, solving/graphing rational equations, applications of functions, simplifying racial expressions, solving radical equations, sequences and series, and probability. Prerequisites: Successful completion of Keystone Algebra I and successful completion of Keystone Geometry. (Keystone Geometry may be taken concurrently.)

ANCHOR STANDARDS:
A2.1.2.1.2 Simplify/evaluate expressions involving positive and negative exponents and/or roots.
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.
A2.2.2.2.1 Identify or describe the effect of changing parameters within a family of functions (e.g., $y = x^2$ and $y = x^2 + 3$)
A2.1.2.1.1 Simplify/evaluate expressions involving multiplying with exponents, powers of powers, and powers of products.
A2.2.1.1.4 Identify and/or determine the characteristics of an exponential, quadratic, or polynomial function.
A2.2.2.1.4 Translate a polynomial, exponential, or logarithmic function from one representation to another (graph, table, and equation).
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.
A2.1.1.1.1 Simplify/write square roots in terms of *i*.
A2.1.2.1.3 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.

A2.1.2.2.2 Simplify rational algebraic expressions. A2.1.1.1.1 Simplify/write square roots in terms of *i*. A2.1.1.1.2 Simplify/evaluate expressions involving powers of *i*. A2.1.1.2.1 Add and subtract complex numbers. A2.1.1.2.2 Multiply and divide complex numbers.. A2.1.3.1.2 Solve equations involving rational and/or radical expressions.
KEY COURSE TEXT AND MATERIALS:
KEY ASSESSMENTS: Diagnostic: Formative: Summative:

SCOPE AND SEQUENCE				
Unit	STANDARDS	ASSESSMENT	MATERIALS	TIMEFRAME
Unit 1: Chapter 1-Equations and Inequalities	A2.1.2.1.2 A2.1.3.2.2	Evaluating Expressions and Solving Equations Quiz Solving and Graphing Inequalities Quiz	Chapter 1 Powerpoint notes Textbook Whiteboards/Chalk boards Calculators Worksheets Assessments	12 Days

Unit 2: Chapter 2-Functions, Equations, and Graphs (Equations of Lines)	A2.2.1.1.3 A2.2.2.2.1	Graded Assignment on Equations of Lines and Inequalities Functions, Domain and Range, Function Notation, and Absolute Value Functions and Inequalities Quiz	Chapter 2 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	17 Days
Unit 3: Chapter 3-Systems of Equations and Inequalities		Solving Systems of Equations Quiz Linear Programming Graded Assignment (collected as part of the Chapter 3 Test Chapter 3 Test	Chapter 3 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	15 Days
Unit 4: Chapter 4 Quadratic Functions and Relations	A2.1.2.1.1 A2.2.1.1.4 A2.2.2.1.4 A2.2.2.2.1 A2.1.2.2.1 A2.1.3.1.1 A2.1.1.1.1 A2.1.2.1.3	Graphing Quadratics Quiz Factoring Quiz Solving Quadratics Quiz Completing the Square Quiz Chapter 4 Test	Chapter 4 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	30 Days

Unit 5: Chapter 5- Polynomials and Polynomial Functions	A2.1.2.1.3 A2.1.2.2.2 A2.2.1.1.4	Polynomial Operations Quiz Polynomial Functions Quiz Solving Polynomials by Factoring Quiz Chapter 5 Test	Chapter 5 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	25 Days
Unit 6 Chapter 6, Part 1 Radical Functions and Equations	A2.1.2.1.2 A2.1.1.1.1 A2.1.1.1.2 A2.1.1.2.2 A2.1.1.2.1 A2.2.1.1.3 A2.2.2.2.1 A2.1.3.1.2	Radical Operations Quiz 6-3 Skills Practice Graded Worksheet Graded Assignment on Rational Exponents using the Roots, Radicals, and Exponents Worksheet Solving Radical Equations and Inequalities Graded Assignment Chapter 6, Part 1 Test	Chapter 6 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	27 Days

Unit 7: Chapter 6, Part 2-Functions and Inverses	A2.2.1.1.3	Function Operations Worksheet as a Graded Assignment Function Operations and Inverses Graded Assignment	Chapter 6 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	7 Days
Unit 8: Chapter 8 - Rational Functions and Equations	A2.2.1.1.3 A2.1.2.2.2 A2.2.2.2.1	Rational Expressions Quiz Solving Rational Equations Graded Assignment Graphing Rational Functions Quiz Solving Rational Inequalities Graded Assignment	Chapter 8 Powerpoint notes Textbook Whiteboards/Chalkboards Calculators Worksheets Assessments	19 Days