

Danville Area School District
Course Overview and Scope and Sequence

Course Title: Keystone Algebra I
Content Area: Mathematics
Grade Level: Grades 9-12
Date Developed: June 2023

COURSE OVERVIEW: Keystone Algebra I is the second of three Algebra courses. This course is aligned to the Pennsylvania Keystone Assessment Anchors, focuses on simplifying Algebraic expressions, graphing / interpreting linear equations and inequalities, solving systems of equations, analyzing functions, simplifying exponents, factoring, simplifying rational expressions, probability, and data analysis including "line of best fit." The Keystone Algebra I Exam will be administered during the fourth marking period. Prerequisites: Successful Completion of an Algebra course

ANCHOR STANDARDS:

- A1.1.1.1.2 Simplify square roots.
- A1.1.1.2.1 Find the Greatest Common Factor and/or the Least Common Multiple for sets of monomials.
- A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems.
- A1.1.1.4.1 Use estimation to solve problems.
- A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form.)
- A1.1.1.5.2 Factor algebraic expressions, including difference of squares and trinomials (after factoring out all monomial factors)
- A1.1.1.5.3 Simplify/reduce a rational algebraic expression.
- A1.1.2.1.1 Write, solve, and/or apply a linear equation. (including absolute value equations)
- A1.1.2.1.2 Use and/or identify an algebraic property to justify and step in an equation-solving process.
- A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation.
- A1.1.2.2.1 Write and/or solve a system of linear equations using graphing, substitution, and/or elimination.
- A1.1.2.2.2 Interpret solutions to problems in the context of the problem situation.

- A1.1.3.1.1 Write or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities).
- A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line.
- A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation.
- A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing.
- A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation.
- A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.

- A1.2.1.1.2 Determine whether a relation is a function, given a set of points or a graph.
- A1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table.)
- A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a function.
- A1.2.1.2.2 Translate from one representation of a linear function to another (i.e., graph, table, and equation)
- A1.2.2.1.1 Identify, describe, and/or use constant rates of change
- A1.2.2.1.2 Apply the concept of linear rate of change to solve problems.
- A1.2.2.1.3 Write or identify a linear equation when given the graph of a line, two points on a line, or the slope and a point on the line (including parallel and perpendicular situations) Note: Linear equation may be in point-slope, standard, and/or slope-intercept form
- A1.2.2.1.4 Determine the slope and/or y-intercept represented by a linear equation or graph.
- A1.2.2.2.1 Draw, identify, and/or write an equation for a line of best fit for a scatter plot.
- A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data.
- A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measures of central tendency, or other representation.
- A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box–and–whisker plot, stem–and–leaf plot, scatter plot, measures of central tendency, or other representations)
- A1.2.3.2.3 Make predictions using the equations or graphs of best–fit lines of scatter plots.
- A1.2.3.3.1 Find probabilities for compound events and represent as a fraction, decimal, or percent

KEY COURSE TEXT AND MATERIALS: Algebra I by Ron Larson and Paul Battaglia

KEY ASSESSMENTS:
Diagnostic: CDT, PVAAS data
Formative: Bellringer assignments, quizzes, exit tickets, graded assignments
Summative: Unit tests, Final Exam, Keystone Algebra I Exam

SCOPE AND SEQUENCE					
Unit	PRIORITY STANDARDS	SUPPORTING STANDARDS	ASSESSMENT	MATERIALS	TIMEFRAME
Algebra Review	A1.1.1.4.1, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3		Bellringer problems, exit tickets, quizzes (3), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom.	21-22 days
Exponent Rules	A1.1.1.3.1, A1.1.2.1.3		Bellringer problems, exit tickets, unit exam, quizzes (2), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom.	12-13 days
Simplifying Polynomials	A1.1.1.5.1, A1.1.2.1.3		Bellringer problems, exit tickets, unit exam, quizzes	Textbook assignments, teacher created materials. All	13-14 days

			(2), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	materials will be posted on Google Classroom.	
Factoring Polynomials	A1.1.1.5.2, A1.1.2.1.3		Bellringer problems, exit tickets, unit exam, quiz, Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom.	18-19 days
LCM/GCF, Rational Expressions, Radical Expressions	A1.1.1.1.2, A1.1.1.5.3, A1.1.2.1.3		Bellringer problems, exit tickets quizzes (3), Keystone Algebra I Exam MC preparation assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom.	13 days
Data Analysis and Probability	A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.3.1		Bellringer problems, unit exam, quizzes (2), Keystone	Textbook assignments, teacher created materials. All	21-22 days

			Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	materials will be posted on Google Classroom	
Graphing Linear Equations	A1.2.1.1.1, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.1.1, A1.2.2.1.2, A1.2.2.1.3, A1.2.2.1.4		Bellringer problems, exit tickets, unit exam, quizzes (3), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom	21-22 days
Functions and Scatterplots	A1.2.1.1.2, A1.2.1.1.3, A1.2.1.2.1, A1.2.1.2.2, A1.2.2.2.1, A1.2.3.2.3		Bellringer problems, exit tickets, unit exam,quizzes (2), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom	9 days

Systems of Equations	A1.1.2.2.1, A1.1.2.2.2, A1.1.3.2.1, A1.1.3.2.2		Bellringer problems, exit tickets, unit exam, quizzes (2), Keystone Algebra I Exam MC preparation assignment, Keystone Algebra I Open Ended Response Assignment	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom	19-20 days
Absolute Value	A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3		Bellringer problems, quizzes (2)	Textbook assignments, teacher created materials. All materials will be posted on Google Classroom	6 days
Keystone Algebra I Exam Preparation/Final Exam Review	All standards listed in the Anchors/Standards are reviewed here.	All standards listed in the Anchors/Standards are reviewed here	Review modules for Module 1 and Module 2 of the Keystone Exam, practice problems from the Keystone Algebra I Released Items	Teacher created review materials, Keystone Algebra I Released Items. All materials will be posted on Google Classroom	17-23 days (pending start of the school year and date of the Keystone Algebra I Exam)