Keystone Algebra Remediation/Preparation

Curriculum Guide

Dunmore School District

Dunmore, PA

Keystone Algebra Remediation/Preparation

Prerequisite:

- Supplemental course to Algebra I, Algebra I Part I, Algebra I Part II to prepare students for Keystone Algebra I exam.
- Failed to demonstrate proficiency on the Keystone Algebra I exam

This course is based on the Algebra I K curriculum. The content of the Algebra I K course is adapted to address the deficiencies of the students in need of remediation. General topics, resources, and the timeline are modified to meet the needs of all the students in this course.

Year-at-a-glance

Subject: Keystone Algebra Remediation/Preparation	Grade Level: 9, 10, 11	Date Completed: 6/07/2020

1st Quarter

Topic	Resources	Standards
Real Numbers	**Worksheets**	**A1.1.1.1 CC.2.1.8.E.1, CC.2.1.8.E.4, CC.2.1.HS.F.1, CC.2.1.HS.F.2 A1.1.1.1.1**
Equations	**Algebra 1 Chapter 1: 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9**	**A1.1.2.1, CC.2.1.HS.F.3 CC.2.1.HS.F.4, CC.2.1.HS.F.5, CC.2.2.8.B.3, CC.2.2.8.C.1, CC.2.2.8.C.2, CC.2.2.HS.C.3, CC.2.2.HS.D.8, CC.2.2.HS.D.9, CC.2.2.HS.D.10, A1.1.2.1.1, A1.1.2.1.2, A1.1.2.1.3**
Inequalities	**Algebra 1 Chapter 2: 2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7**	**A1.1.3.1, CC.2.1.HS.F.5, CC.2.2.HS.D.7, CC.2.2.HS.D.9, CC.2.2.HS.D.10, A1.1.3.1.1, A1.1.3.1.2, A1.1.3.1.3**

2ⁿᵈ Quarter

Topic	Resources	Standards
Functions	**Algebra 1** **Chapter 3:** **3-1, 3-2, 3-3, 3-4, 3-5, 3-6**	**A1.2.1.1, CC.2.2.8.C.1, CC.2.2.8.C.2, CC.2.2.HS.C.2, CC.2.2.HS.C.1, CC.2.2.HS.C.3, CC.2.4.HS.B.2, A1.2.1.1.1, A1.2.1.1.2, A1.2.1.1.3**
Linear Functions	**Algebra 1** **Chapter 4:** **4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10**	**A1.1.2.1, A1.2.2.2, A1.2.2.2, CC.2.1.HS.F.3, CC.2.1.HS.F.4**

3rd Quarter

Topic	Resources	Standards
Systems of Equations and Inequalities	**Algebra 1** **Chapter 5:** **5-1, 5-2, 5-3,5-4, 5-5, 5-6**	**CC.2.1.HS.F.5, CC.2.2.HS.D.7, CC.2.2.HS.D.10, A1.1.3.2**
Exponents and Polynomials	**Algebra 1** **Chapter 6:** **6-1, 6-2, 6-3, 6-4, 6-5, 6-6**	**A1.1.1.5, CC.2.2.HS.D.1, CC.2.2.HS.D.2, CC.2.2.HS.D.3**
Data Distributions	**Algebra 1** **Chapter 10:** **10-1, 10-2, 10-3** **Keystone Finish Line** **Workbook Algebra 1**	**A1.2.3.1, A1.2.3.2, A1.2.3.3, A1.2.2.2, CC.2.4.HS.B.1, CC.2.4.HS.B.3, CC.2.4.HS.B.5, CC.2.4.7.B.3, CC.2.4.HS.B.4, CC.2.2.HS.C.6, CC.2.4.HS.B.7, CC.2.4.8.B.1, CC.2.4.HS.B.2, CC.2.4.HS.B.3, A1.2.3.1.1, A1.2.3.2.1, A1.2.3.2.2, A1.2.3.2.3, A1.2.3.3.1, A1.2.2.2.1**

4th Quarter

Topic	Resources	Standards
Factoring Polynomials	**Algebra 1** **Chapter 7:** **7-1, 7-2, 7-3, 7-4, 7-5, 7-6** **Keystone Finish Line Workbook Algebra 1** **Keystone Review Packets**	**A1.1.1.2, A1.1.1.5,** **CC.2.2.HS.D.5, CC.2.2.HS.D.6**
Quadratics	**Algebra 1** **Chapter 8:** **8-1, 8-2, 8-3, 8-5, 8-6, 8-7, 8-8**	**CC.2.1.HS.F.7, CC.2.1.HS.F.7,** **CC.2.2.HS.D.5**
Review and Final Exam	**Text Book** **Review Packets**	

General Topic	Anchor Descriptor PA Core Standards	Eligible Content, Essential Knowledge, Skills & Vocabulary	Resources & Activities	Assessments	Suggested Time (In Days)
Real Numbers	A1.1.1.1 Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents). CC.2.1.8.E.1 Distinguish between rational and irrational numbers using their properties. CC.2.1.8.E.4 Estimate irrational numbers by comparing them to rational numbers. CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents. CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real-world or mathematical problems.	A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed. Vocabulary: • Rational Number • Irrational Number	Approved textbook Worksheets Kuta Software	Teacher prepared tests, quizzes, etc. Kuta Software	15 days
Equations	A1.1.2.1 Write, solve, and/or graph linear equations using various methods.	A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations).	Algebra 1 Chapter 1: 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 1-9	Teacher prepared tests, quizzes, etc. Kuta Software	20 days

	CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays. **CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.** **CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.** **CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.** **CC.2.2.8.C.1 Define, evaluate, and compare functions.** **CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.** **CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.**	**A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process. Note: Linear equations only.** **A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only.** **Vocabulary:** • **Constant** • **Expression** • **Order of Operations** • **Variable** • **Evaluate** • **Solution** • **Formula** • **Ratio** • **Proportion** • **Unit Rate** • **Rate** • **Scale Drawing** • **Scale Model** • **Similar** • **Corresponding Sides** • **Corresponding Angles** • **Scale Factor**	**Kuta Software**		

	CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable. **CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.** **CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically**				
Inequalities	**A1.1.3.1 Write, solve, and/or graph linear inequalities using various methods.** **CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.** **CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.** **CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.**	**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. Note: Linear inequalities only.** **Vocabulary:** • **Inequality** • **Compound Inequality** • **Intersection** • **Union** • **Absolute Value**	**Algebra 1** **Chapter 2:** **2-1, 2-2, 2-3, 2-4, 2-5, 2-6, 2-7** **Kuta Software**	**Teacher prepared tests, quizzes, etc.** **Kuta Software**	**20 days**

Functions	A1.2.1.1 Analyze and/or use patterns or relations.	A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.	Algebra 1 Chapter 3: 3-1, 3-2, 3-3, 3-4, 3-5, 3-6	Teacher prepared tests, quizzes, etc.	20 days
	CC.2.2.8.C.1 Define, evaluate, and compare functions.			Kuta Software	
	CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.	A1.2.1.1.2 Determine whether a relation is a function, given a set of points or a graph.	Kuta Software		
	CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.	A1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table).			
	CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.	Vocabulary: • Continuous Graph • Discrete Graph • Relation • Domain • Range • Function • Independent Variable			
	CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	• Dependent Variable • Function Rule • Function Notation • Scatter Plots • Correlation • Positive Correlation			
	CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	• Negative Correlation • Trend Line • Sequence • Term • Common Difference • Arithmetic Sequence			

Linear Functions	A1.1.2.1 Write, solve, and/or graph linear equations using various methods. A1.2.2.2 Analyze and/or interpret data on a scatter plot A1.2.2.2 Analyze and/or interpret data on a scatter plot A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations). CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays. CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems. CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. CC.2.2.8.B.3 Analyze and solve linear equations and pairs of simultaneous linear equations.	A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations) A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process. Note: Linear equations only. A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. Note: Linear equations only A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function. 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 (slope) to solve problems. A1.2.2.1.3 Write or identify a linear equation when given • the graph of the line • two points on the line, or • the slope and a point on the line.	Algebra 1 Chapter 4: 4-1, 4-2, 4-3, 4-4, 4-5, 4-6, 4-7, 4-8, 4-9, 4-10 Kuta Software	Teacher prepared tests, quizzes, etc. Kuta Software	20 days

	CC.2.2.8.C.1 Define, evaluate, and compare functions. **CC.2.2.8.C.2 Use concepts of functions to model relationships between quantities.** **CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.** **CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.** **CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.** **CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.** **CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.**	**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, find, and/or write an equation for a line of best fit for a scatter plot** **Vocabulary:** • **Linear Function** • **Linear Equation** • **X-Intercept** • **Y-Intercept** • **Rate of Change** • **Slope** • **Direct Variation** • **Constant of Variation** • **Slope-Intercept Form** • **Point-Slope Form** • **Line of Best Fit** • **Parallel Lines** • **Perpendicular Lines** • **Family of Functions** • **Parent Function** • **Transformation** • **Translation** • **Rotation** • **Reflection**			

| Systems of Equations and Inequalities | A1.1.3.2 Write, solve, and/or graph systems of linear inequalities using various methods.

CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.

CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.

CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically. | A1.1.2.2.1 Write and/or solve a system of linear equations (including problem situations) using graphing, substitution, and/or elimination. Note: Limit systems to two linear equations.

A1.1.3.2.1 Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities

A1.1.3.2.2 Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities

Vocabulary:

• **System of Linear Equation**
• **Solution of a System of Linear**
• **Equations**
• **Consistent System**
• **Inconsistent System**
• **Independent System**
• **Dependent System**
• **Linear Inequality** | Algebra 1
Chapter 5:
5-1, 5-2, 5-3, 5-4, 5-5, 5-6

Kuta Software | Teacher prepared tests, quizzes, etc.

Kuta Software | 20 days |

		• **Solution of a Linear** • **Inequality** • **System of Linear** • **Inequalities** • **Solutions of a** **System** • **Of Linear** **Inequalities**			
Exponents and Polynomials	**A1.1.1.5 Simplify expressions involving polynomials** **CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.** **CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.** **CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.**	**A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial.** **Vocabulary:** • **Index** • **Monomial** • **Degree of a** **Monomial** • **Polynomial** • **Degree of a** **Polynomial** • **Standard Form of a** • **Polynomial** • **Leading Coefficient** • **Perfect-Square** **Trinomial** • **Difference of Two** **Squares**	**Algebra 1 Chapter 6: 6-1, 6-2, 6-3, 6-4, 6-5, 6-6** **Kuta Software**	**Teacher prepared tests, quizzes, etc.** **Kuta Software**	**15 days**

Data Distributions	A1.2.3.1 Use measures of dispersion to describe a set of data.	A1.2.3.1.1 Calculate and/or interpret the range, quartiles, and interquartile range of data.	Algebra 1 Chapter 10: 10-1, 10-2, 10-3	Teacher prepared tests, quizzes, etc.	10 days
	A1.2.3.2 Use data displays in problem solving settings and/or to make predictions.	A1.2.3.2.1 Estimate or calculate to make predictions based on a circle, line, bar graph, measure of central tendency, or other representation.	Keystone Finish Line Workbook Algebra 1 Kuta Software	Kuta Software	
	A1.2.3.3 Apply probability to practical situations.				
	A1.2.2.2 Analyze and/or interpret data on a scatter plot.				
	CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.	A1.2.3.2.2 Analyze data, make predictions, and/or answer questions based on displayed data (box-and whisker plots, stem-and-leaf plots, scatter plots, measures of central tendency, or other representations).			
	CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.				
	CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample surveys, experiments, and observational studies	A1.2.3.2.3 Make predictions using the equations or graphs of best-fit lines of scatter plots.			
	CC.2.4.7.B.3 Investigate chance processes and develop, use, and evaluate probability models.	A1.2.3.3.1 Find probabilities for compound events (e.g., find probability of red and blue, find probability of red or blue) and represent as a fraction, decimal, or percent.			

	CC.2.4.HS.B.4 Recognize and evaluate random processes underlying statistical experiments. CC.2.4.HS.B.7 Apply the rules of probability to compute probabilities of compound events in a uniform probability model. CC.2.2.HS.C.6 Interpret functions in terms of the situations they model. CC.2.4.8.B.1 Analyze and/or interpret bivariate data displayed in multiple representations. CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables. CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.	A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.		

| Factoring Polynomials | A1.1.1.2 Apply number theory concepts to show relationships between real numbers in problem-solving settings.

A1.1.1.5 Simplify expressions involving polynomials

CC.2.2.HS.D.5 Use polynomial identities to solve problems.

CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms. | A1.1.1.2.1 Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.

A1.1.1.5.1 Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial.

A1.1.1.5.2 Factor algebraic expressions, including difference of squares and trinomials.

Note: Trinomials are limited to the form $ax^2 + bx + c$ where *a* is equal to 1 after factoring out all monomial factors.

A1.1.1.5.3 Simplify/reduce a rational algebraic expression.

Vocabulary:

• **Prime Factorization**
• **Greatest Common Factor** | Algebra 1 Chapter 7: 7-1, 7-2, 7-3, 7-4, 7-5, 7-6

Keystone Finish Line Workbook Algebra 1

Keystone Review Packets

Kuta Software | Teacher prepared tests, quizzes, etc.

Kuta Software | 20 days |

| Quadratics | CC.2.1.HS.F.7 Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.

CC.2.1.HS.F.7 Apply concepts of complex numbers in polynomial identities and quadratic equations to solve problems.

CC.2.2.HS.D.5 Use polynomial identities to solve problems. | A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4

A2.2.1.1.1, A2.2.1.1.2, A2.2.1.1.3, A2.2.1.1.4

A1.1.1.5.1, A1.1.1.5.2, A1.1.1.5.3, A2.1.2.2.1, A2.1.2.2.2, A2.1.3.1.1, A2.1.3.1.2, A2.1.3.1.3, A2.1.3.1.4

Vocabulary:

• Quadratic Function
• Parabola
• Vertex
• Minimum Value
• Maximum Value
• Axis of Symmetry
• Zero of a Function
• Quadratic Equation
• Completing the Square | Algebra 1
Chapter 8:
8-1, 8-2, 8-3, 8-5, 8-6, 8-7, 8-8

Kuta Software | Teacher prepared tests, quizzes, etc.

Kuta Software | 10 days |
| Review and Final Exam | | | Text Book
Worksheet Packets
Kuta Software | | 10 days |