IAA Curriculum

Content Area	Mathematics	Grade	11
Course Name	Keystone Algebra Remediation		

Unit / Concept	Introduction/About the Pennsylvania Keystone Algebra I. Exam, review of alignment, depth of knowledge, exam format, item and scoring format, Algebra I. exam directions, and general description of scoring guidelines for Algebra I., discuss test-taking strategies ● Module 1: Operations and Linear Equations & Inequalities ○ Unit 1: Operations with Real Numbers and Expressions, Part 1 ○ Unit 2: Operations with Real Numbers and Expressions, Part 2 **IXL:** A. Numbers B. Operations C. Ratios, rates, and proportions D. Percents E. Measurement F. Geometry G. Coordinate Plane H. Properties I. Variable expressions and equations J. Solve linear equations
Big Ideas	● Comparing Real Numbers ● Simplifying Square Roots ● Greatest Common Factor and Least Common Factor ● Exponents, Roots, and Absolute Value ● Simplifying Expressions ● Estimation ● Polynomial Expressions ● Factoring Algebraic Expressions ● Factoring Trinomial Expressions ● Simplifying Rational Expressions
Essential Questions	● What is the difference between a rational number and irrational number? ● What is the square root of a number? ● How do you find the simplest form of a square root? ● How can you differentiate between the greatest common factor and the least common factor? ● What are positive exponents? ● What are negative exponents? ● How do you multiply monomials? ● How do you divide monomials? ● How do you use estimation with fractions, decimals, and percentages? ● What is the difference between polynomial expressions, monomial expressions, and binomial expressions? ● How do you use greatest common factor to factor algebraic expressions? ● How do you factor a trinomial in an algebraic expression? ● How do you simplify rational expressions?

Key Learning Objectives & Skills	• Use solved problems to engage students in analyzing algebraic reasoning and strategies. • Teach students to utilize the structure of algebraic representations. • Teach students to intentionally choose from alternative algebraic strategies when solving problems. • Compare real numbers • Differentiate between rational and irrational numbers • Simplify square roots • Identity greatest common factor • Identify the least common multiple • Differentiate between exponents, roots, and absolute value • Multiply monomials • Dividing monomials • Identify an estimate • Estimate with fractions and decimals • Estimate with percents • Differentiate between polynomial, monomial, and binomials • Add and subtract polynomials • Multiply polynomials • Identify greatest common factor • Factor by grouping • Identify the difference of two squares • Factor trinomials of the form x2+bx+c • Simplify rational expressions

Q1: Augus 29-November 2	**Smart Objectives (SWBAT):**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**
August/ September	• Compare real numbers • Differentiate between rational and irrational numbers • Simplify square roots • Identity greatest common factor • Identify the least common multiple • Differentiate between exponents, roots, and absolute value • Multiply monomials • Dividing monomials	• Unit 1: Operations with Real Numbers and Expressions, Part 1 ○ Lesson 1: Comparing real numbers ○ Lesson 2: simplifying square roots ○ Lesson 3: Greatest common factor and least common multiple ○ Lesson 4: exponents, roots, and absolute root ○ Lesson 5: simplifying expressions ○ Unit 1 Constructed Response Review	CC.2.1.8.E.1 CC.2.1.8.E.4 CC.2.1.HS.F.1 CC.2.1.HS.F.2 CC.2.1.6.E.3 CC.2.1.HS.F.2 CC.2.1.6.E.3 CC.2.1.HS.F.2	A.1.1	A1.1.1.1.1 A1.1.1.1.2 A1.1.1.2.1 A1.1.1.3.1	Real numbers, rational numbers, irrational numbers, square root, greatest common factor, least common multiple, exponents, roots, absolute value, monomials, polynomials, binomials, estimate, fractions, decimals, grouping, trinomials, rational expressions
October/ November	• Identify an estimate • Estimate with fractions and decimals • Estimate with percents	• Unit 2: Operations with Real Numbers and Expressions, Part 2 ○ Lesson 1: Estimation	CC.2.2.7.B.3 CC.2.2.HS.D.9 CC.2.2.HS.D.	A.1.1	A1.1.1.4.1 A1.1.1.5.1 A1.1.1.5.2 A1.1.1.5.3	

	• Differentiate between polynomial, monomial, and binomials • Add and subtract polynomials • Multiply polynomials • Identify greatest common factor • Factor by grouping • Identify the difference of two squares • Factor trinomials of the form x2+bx+c • Simplify rational expressions	○ Lesson 2: Polynomial Expressions ○ Lesson 3: Factoring algebraic expressions ○ Lesson 4: Factoring trinomial expressions ○ Lesson 5: Simplifying rational expressions ○ Unit 2 Constructed Response Review	1 CC.2.2.HS.D.2 CC.2.2.HS.D.3 CC.2.2.HS.D.5 CC.2.2.HS.D.6			
Resources	Schoology, Google Applications, IXL, *Keystone Finish Line: Algebra I* Consumable text					
Formative Assessments	Teacher check for understanding, whole group discussion, think-pair-share, station activities (jigsaw, carousel), at-the-bells, exit tickets, writing tasks, check your understanding, selection quizzes/tests, essay scoring, visual representations (web or concept maps), analogy prompts, oral questioning, follow-up probes, misconception check, independent reading and reflecting					
Summative Assessments	Selection quizzes/tests, essay scoring, analyze the text comprehension questions, writing tasks					
Strategies for ELL and IEP Support	1:1 support, chunking, shortened essay and questions, translations offered, adapted texts provided, push-in/pull-out support, word banks, curtailed multiple-choice questions and options, choice of a partner/group, guided notes, co-teaching, communication with ESL & special education teachers, visuals to correspond with notes/activities, use sentence frames, word webs, flashcards, numbered heads, carousel, summarizations, module review					

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Content Area	Mathematics	**Grade**	11
Course Name	Keystone Algebra Remediation		

Unit / Concept	Introduction/About the Pennsylvania Keystone Algebra I. Exam, review of alignment, depth of knowledge, exam format, item and scoring format, Algebra I. exam directions, and general description of scoring guidelines for Algebra I., discuss test-taking strategies ● Module 1: Operations and Linear Equations & Inequalities ○ Unit 3: Linear Equations ○ Unit 4: Linear Inequalities **IXL:** K. Single-variable linear inequalities L. Absolute value equations and inequalities M. Matrices N. Data and graphs O. Problem solving P. Number sequences Q. Relations and functions R. Piecewise-defined functions S. Direct and inverse variation T. Linear functions
Big Ideas	● Linear Equations ● Systems of Linear Equations ● Linear Inequalities ● Compound Inequalities ● System of Linear Inequalities
Essential Questions	● What is a linear equation? ● How do you solve a linear equation? ● If a linear equation has two variables, how do you solve it? ● How do you solve systems of equations by graphing? ● What are linear inequalities? ● How do you solve linear inequalities? ● How do you graph linear inequalities? ● How do compound linear equalities differ from linear inequalities? ● What is absolute value inequalities? ● How can you identify graphs of linear inequalities in two variables? ● What is a system of linear inequalities?
Key Learning	● Use solved problems to engage students in analyzing algebraic reasoning and strategies.

Objectives & Skills	• Teach students to utilize the structure of algebraic representations. • Teach students to intentionally choose from alternative algebraic strategies when solving problems. • Identify linear equations • Solve linear equations • Solve linear equations in two variables • Interpret solutions to linear equations • Solve systems of equations by graphing • Solve systems of equations using substitution • Solve systems of equations using elimination • Solve systems of equations using multiplication • Identify linear inequalities • Solve linear inequalities • Graph linear inequalities • Interpet solutions to inequalities • Differentiate compound inequalities and absolute value inequalities • Graph linear inequalities in two variables • Identify system of linear inequalities • Interpret solutions to system of linear inequalities					
Q2: November 3-January 19	**Smart Objectives (SWBAT):**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**
November	• Identify linear equations • Solve linear equations • Solve linear equations in two variables • Interpret solutions to linear equations • Solve systems of equations by graphing • Solve systems of equations using substitution • Solve systems of equations using elimination • Solve systems of equations using multiplication	• Unit 3: Linear Equations ○ Lesson 1: Linear equations, part 1 ○ Lesson 2: Linear equations, part 2 ○ Lesson 3: Systems of linear equations ○ Unit 3 Constructed-Response Review	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.7 CC.2.2.HS.D.8 CC.2.2.HS.D.9 CC.2.2.HS.D.10	A1.1	A1.1.2.1.1 A1.1.2.1.2 A1.1.2.1.3 A1.1.2.2.1 A1.1.2.2.2	Linear equations, variables, systems of equations, graphing, substitution, elimination, multiplication, inequalities, compound inequalities, absolute value inequalities
December/ January	• Identify linear inequalities • Solve linear inequalities • Graph linear inequalities • Interpet solutions to inequalities • Differentiate compound inequalities and absolute value inequalities • Graph linear inequalities in two variables • Identify system of linear	• Unit 4: Linear Inequalities ○ Lesson 1: Linear inequalities ○ Lesson 2: Compound Inequalities ○ Lesson 3: Systems of linear inequalities ○ Unit 4 Constructed-Response Review	CC.2.1.HS.F.5 CC.2.2.HS.D.7 CC.2.2.HS.D.9 CC.2.2.HS.D.10 CC.2.1.HS.F.5 CC.2.2.HS.D.7 CC.2.2.HS.D.10	A1.1	A1.1.3.1.2 A1.1.3.1.3 A1.1.3.1.1 A1.1.3.2.1 A1.1.3.2.2	

	• inequalities • Interpret solutions to system of linear inequalities					
Resources	Schoology, Google Applications, IXL, *Keystone Finish Line: Algebra I* Consumable text					
Formative Assessments	Teacher check for understanding, whole group discussion, think-pair-share, station activities (jigsaw, carousel), at-the-bells, exit tickets, writing tasks, check your understanding, selection quizzes/tests, essay scoring, visual representations (web or concept maps), analogy prompts, oral questioning, follow-up probes, misconception check, independent reading and reflecting					
Summative Assessments	Selection quizzes/tests, essay scoring, analyze the text comprehension questions, writing tasks					
Strategies for ELL and IEP Support	1:1 support, chunking, shortened essay and questions, translations offered, adapted texts provided, push-in/pull-out support, word banks, curtailed multiple-choice questions and options, choice of a partner/group, guided notes, co-teaching, communication with ESL & special education teachers, visuals to correspond with notes/activities, use sentence frames, word webs, flashcards, numbered heads, carousel, summarizations, module review					

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Big Ideas	● Identifying and Representing Patterns ● Relations and Functions ● Linear Functions ● Slope, Intercepts, and Rates of Change ● Writing Linear Equations ● Equations of Lines of Best Fit
Essential Questions	● What is the difference between a pattern and arithmetic pattern? ● How do you identify domain and range? ● How do you differentiate functions from relations? ● What is mapping? ● How do you find graphs of linear functions?

	• How do you find tables of linear functions? • How do you interpret linear functions? • How do you identity slope? • What is rate of change? • What are the differences between standard form, point-slope form, and slope-intercept form? • How do you properly utilize a scatter plot?
Key Learning Objectives & Skills	• Use solved problems to engage students in analyzing algebraic reasoning and strategies. • Teach students to utilize the structure of algebraic representations. • Teach students to intentionally choose from alternative algebraic strategies when solving problems. • Identify patterns • Recognize arithmetic patterns • Describe patterns algebraically • Representing patterns graphically • Identify domain and range • Identify functions from relations • Understand mapping • Find graphs of linear functions • Find tables of linear functions • Interpret linear functions • Identify slope • Use slope formula • Identify rates of change and applications of slope • Find intercepts from graphs • Differentiate the forms of linear equation: standard form, point-slope form, and slope-intercept form • Find intercepts from equations • Find the equation of a line from a graph • Find the equation of a line from two points • Find the equation of a line from the slope and a point • Identify lines of best fit • Find an equation of a line of best fit

Q3: January 20-March 27	**Smart Objectives (SWBAT):**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**

January/ February	• Identify patterns
	• Recognize arithmetic patterns
	• Describe patterns algebraically
	• Representing patterns graphically
	• Identify domain and range
	• Identify functions from relations
	• Understand mapping
	• Find graphs of linear functions
		• Unit 5: Functions
		  ○ Lesson 1: Identifying and representing patterns
		  ○ Lesson 2: Relations and functions
		  ○ Lesson 3: Linear functions
		  ○ Unit 5 Constructed-response review
			CC.2.2.8.C.1
			CC.2.2.8.C.2
			CC.2.2.HS.C.1
			CC.2.2.HS.C.2
			CC.2.2.HS.C.3
			CC.2.4.HS.B.2
			CC.2.1.HS.F.3
			CC.2.1.HS.F.4
			CC.2.2.8.B.2
			CC.2.2.8.C.1
			CC.2.2.8.C.2
			CC.2.2.HS.C.2
			CC.2.2.HS.C.3
				A1.2	A1.2.1.1.1,
					A1.2.1.1.2,
					A1.2.1.1.3,
					A1.2.1.2.1,
					A1.2.1.2.2
						Patterns, arithmetic patterns, graphic, domain, range, functions, relations, mapping, linear functions, slope, slope formula, rates of change, applications of slope, intercepts, graphing, forms of linear equation, standard form,

	• Find tables of linear functions • Interpret linear functions		CC.2.2.HS.C.4 CC.2.2.HS.C.6 CC.2.4.HS.B.2			point-slope form, slope-intercept form, equations
March	• Identify slope • Use slope formula • Identify rates of change and applications of slope • Find intercepts from graphs • Differentiate the forms of linear equation: standard form, point-slope form, and slope-intercept form • Find intercepts from equations • Find the equation of a line from a graph • Find the equation of a line from two points • Find the equation of a line from the slope and a point • Identify lines of best fit • Find an equation of a line of best fit	• Unit 6: Coordinate Geometry ○ Lesson 1: Slopes, intercepts, and rates of change ○ Lesson 2: Writing linear equations ○ Lesson 3: Equations of lines of best fit ○ Unit 6 Constructed-response review	CC.2.2.8.C.2 CC.2.2.HS.C.1 CC.2.2.HS.C.2 CC.2.2.HS.C.3 CC.2.2.HS.C.5 CC.2.2.HS.C.6 CC.2.4.HS.B.1 CC.2.2.HS.C.6 CC.2.4.8.B.1 CC.2.4.HS.B.2 CC.2.4.HS.B.3	A1.2	A1.2.2.1.1 A1.2.2.1.2 A1.2.2.1.4 A1.2.2.1.3 A1.2.2.2.1	
Resources	Schoology, Google Applications, IXL, *Keystone Finish Line: Algebra I* Consumable text					
Formative Assessments	Teacher check for understanding, whole group discussion, think-pair-share, station activities (jigsaw, carousel), at-the-bells, exit tickets, writing tasks, check your understanding, selection quizzes/tests, essay scoring, visual representations (web or concept maps), analogy prompts, oral questioning, follow-up probes, misconception check, independent reading and reflecting					
Summative Assessments	Selection quizzes/tests, essay scoring, analyze the text comprehension questions, writing tasks					
Strategies for ELL and IEP Support	1:1 support, chunking, shortened essay and questions, translations offered, adapted texts provided, push-in/pull-out support, word banks, curtailed multiple-choice questions and options, choice of a partner/group, guided notes, co-teaching, communication with ESL & special education teachers, visuals to correspond with notes/activities, use sentence frames, word webs, flashcards, numbered heads, carousel, summarizations, module review					

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Unit / Concept	Introduction/About the Pennsylvania Keystone Algebra I. Exam, review of alignment, depth of knowledge, exam format, item and scoring format, Algebra I. exam directions, and general description of scoring guidelines for Algebra I., discuss test-taking strategies ● Module 2: Linear Functions and Data Organizations ○ Unit 7: Data Analysis **IXL:** EE. Absolute value and function families FF. Radical expressions GG. Radical functions and equations HH. Rational functions and expressions II. Trigonometry JJ. Sets KK. Logic LL. Probability MM. Statistics
Big Ideas	● Central Tendency and Dispersion ● Predictions from Data ● Representations of Data ● Predictgions from Scatter Plots ● Probability of Compound Events ● Constructed Response Review
Essential Questions	● What is the difference between mean, median, and mode? ● What is range?

	• How can you identify quartiles and interquartile? • What is a prediction based on a trend? • How do you use a box-and-whisker plot? • How do you use a stem-and-leaf plot? • What are predictions based on lines of best fit? • What is the difference between compound events, independent events, and dependent events?					
Key Learning Objectives & Skills	• Use solved problems to engage students in analyzing algebraic reasoning and strategies. • Teach students to utilize the structure of algebraic representations. • Teach students to intentionally choose from alternative algebraic strategies when solving problems. • Differentiate between mean, median, and mode • Identify range • Differentiate between the first quartile, second quartile, third quartile • Identify interquartile range • Make predictions based on trends • Make predictions based on probability • Identify and use box-and-whisker plots • Identify stem-and-leaf plots • Make predictions based on lines of best fit • Differentiate between compound events and independents events					
Q4: March 28-June 2	**Smart Objectives (SWBAT):**	**Instructional Strategies and Activities**	**PA CC Standards**	**Keystone Anchors**	**Keystone Eligible Content**	**Vocabulary**
March/April	• Differentiate between mean, median, and mode • Identify range • Differentiate between the first quartile, second quartile, third quartile • Identify interquartile range • Make predictions based on trends • Make predictions based on probability • Identify and use box-and-whisker plots • Identify stem-and-leaf plots	• Unit 7: Data Analysis ○ Lesson 1: Central Tendency and Dispersion ○ Lesson 2: Predictions from data ○ Lesson 3: Representations of Data	CC.2.4.HS.B.1 CC.2.4.HS.B.3 CC.2.4.HS.B.1 CC.2.4.HS.B.3 CC.2.4.HS.B.5	A1.2	A1.2.3.1.1 A1.2.3.2.2 A1.2.3.2.1	Mean, median, mode, range, first quartile, second quartile, third quartile, interquartile range, trends, predictions, probability, box-and-whisker plot, stem-and-leaf plot, compound events, independent events
May/June	• Make predictions based on lines of best fit • Differentiate between compound events and independents events	• Unit 7: Data Analysis ○ Lesson 4: Predictions from Scatter plots ○ Lesson 5: Probability of compound events ○ Unit 7 constructed-response review	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	A1.2	A1.2.3.2.3 A1.2.3.3.1	

Resources	Schoology, Google Applications, IXL, *Keystone Finish Line: Algebra I* Consumable text
Formative Assessments	Teacher check for understanding, whole group discussion, think-pair-share, station activities (jigsaw, carousel), at-the-bells, exit tickets, writing tasks, check your understanding, selection quizzes/tests, essay scoring, visual representations (web or concept maps), analogy prompts, oral questioning, follow-up probes, misconception check, independent reading and reflecting
Summative Assessments	Selection quizzes/tests, essay scoring, analyze the text comprehension questions, writing tasks
Strategies for ELL and IEP Support	1:1 support, chunking, shortened essay and questions, translations offered, adapted texts provided, push-in/pull-out support, word banks, curtailed multiple-choice questions and options, choice of a partner/group, guided notes, co-teaching, communication with ESL & special education teachers, visuals to correspond with notes/activities, use sentence frames, word webs, flashcards, numbered heads, carousel, summarizations, module review