

Keystone Algebra I

A1.1.1 Operations with Real Numbers and Expressions

- **A1.1.1.1** Compare and/or order any real numbers. Note: Rational and irrational may be mixed.
 - [Comparing and Ordering Real Numbers](#)
 - [Comparing and Ordering Open-Ended Response Questions](#)
- **A1.1.1.2** Simplify square roots.
 - [Simplifying Radicals](#)
 - [Review Square Roots, GCF, and LCM \(Radicals\)](#)
 - [Simplifying Radicals Revisited](#)
 - [Adding and Subtracting Radicals Revisited](#)
 - [Simplifying and Combining Radicals Revisited](#)
 - [Multiplying Radicals Revisited](#)
 - [Simplifying & Multiplying Radicals Practice Quiz](#)
 - [Rationalizing Radical Expressions](#)
 - [Everything Radicals Review](#)
 - [11-1 Practice \(82 Problems\)](#)
 - [11-1 Practice \(48 Problems\)](#)
 - [11-1 Answers](#)
- **A1.1.1.2.1** Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.
 - [GCF Worksheet](#)
 - [Review Square Roots, GCF, and LCM \(GCF and LCM\)](#)
 - [GCF Revisited](#)
 - [LCM Worksheet](#)
 - [LCM Revisited](#)
- **A1.1.1.3.1** Simplify/evaluate expressions involving properties/laws of exponents, roots, and/ or absolute values to solve problems. Note: Exponents should be integers from -10 to 10.
 - [Properties of Exponents Practice](#)
 - [More Exponent Properties Practice](#)
 - [Exponent Properties Revisited](#)
 - [Simplifying Absolute Value Problems Practice](#)
 - [Absolute Value Practice Problems](#)
 - [Absolute Value Equations Revisited](#)
- **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). Note: Nothing larger than a binomial multiplied by a trinomial.
 - [Polynomial Addition and Subtraction](#)
 - [Multiplying Monomials](#)
 - [Multiplying Polynomials](#)
 - [Polynomial Practice](#)
 - [Review for TEST 1, Review for TEST 1 GCF and LCM](#)
 - [Polynomial Operations Revisited](#)
 - [Expanding Binomials](#)
- **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.
 - [Factoring Expressions Practice](#)
 - [Factoring Expressions Homework](#)
 - [Mixed Review Worksheet](#)
 - [Additional Factoring Techniques Homework](#)
 - [Factoring Out GCF](#)

- [Factoring Out GCF Practice](#)
- [Factoring Revisited 1](#)
- [Factoring Revisited 2](#)
- [Factoring by Grouping Revisited](#)
- [Factoring Sums and Differences of Cubes](#)
- [Factoring Revisited Practice Quiz](#)
- [Factoring Revisited Practice Test](#)
- **A1.1.1.5.3** Simplify/reduce a rational algebraic expression.
 - [Simplifying Rational Expressions Practice](#)
 - [Simplifying Rational Expressions Homework](#)
 - [Simplifying Rational Expressions Revisited](#)
 - [Multiplying and Dividing Rational Expressions](#)
 - [Rational Expression Mixed Review](#)
 - [Radicals and Rational Expressions Practice Quiz](#)
 - [Factoring and Rational Expressions Practice Quiz](#)
 - [Fun Rational Expressions](#)
 - [Adding and Subtracting Rational Expressions #1](#)
 - [Rational Expressions TEST Practice](#)

A1.1.2 Linear Equations

- **A1.1.2.1** Write, solve, and/or apply a linear equation (including problem situations).
 - [Solving and Writing Linear Equations Practice](#)
 - [Solving and Writing Linear Equations Homework](#)
 - [Multi-Step Equations Practice](#)
 - [Parallel and Perpendicular Lines](#)
 - [Keystone Algebra 1 - Solving Absolute Value Equations](#)
- **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.
 - [Algebraic Properties Practice](#)
 - [Solving Linear Equations and Properties Practice Quiz](#)
- **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
 - [Finding Slope](#)
 - [Graphing Linear Equations](#)
 - [Graphing Linear Equations Homework](#)
 - [Writing Equations for Lines](#)
 - [Solving Systems by Graphing Practice](#)
 - [Solving Systems by Graphing Homework](#)
 - [Cumulative Mixed Review Practice](#)
 - [Solving Systems by Substitution Practice](#)
 - [Solving Systems by Substitution Homework](#)
 - [Solving Systems by Elimination Practice](#)
 - [Systems of Equations Word Problems 1](#)
 - [Systems of Equations Word Problems 2](#)
 - [Review: Linear Equations and Word Problems](#)
 - [Solving Systems by Graphing Revisited](#)
 - [Solving Systems by Elimination Revisited](#)
 - [Solving Systems by Substitution Revisited](#)
 - [Systems of Equations Revisited](#)
 - [Exponent Properties and Systems Word Problems Review](#)
 - Bonus Topic: [Systems of 3 Variables](#)
 - [Systems of 3 Equations Number 2](#)

- **A1.1.2.2.2** Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear equations.

A1.1.3 Linear Inequalities

- **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).
 - [Compound Inequalities Practice](#)
 - [Compound Inequalities Homework](#)
 - [Absolute Value Inequalities Practice](#)
 - [Absolute Value Inequalities Homework](#)
 - [Solving Compound Inequalities Revisited](#)
 - [Practice for Inequalities Test](#)
 - [Absolute Value Inequalities Revisited](#)
- **A1.1.3.1.2** Identify or graph the solution set to a linear inequality on a number line.
 - [Inequalities Practice](#)
 - [Inequalities Homework](#)
- **A1.1.3.2.1** Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities.
 - [Systems of Inequalities Practice](#)
 - [Systems of Inequalities Homework](#)
 - [Systems of Equations and Inequalities Mixed Practice](#)
 - [Equations and Inequalities Mixed Practice](#)
 - [Graphing Linear Inequalities Revisited](#)
 - [Systems of Linear Inequalities Revisited](#)
 - [Linear Programming Practice](#)
 - [Linear Programming Word Problems](#)
 - [More Linear Programming Word Problems](#)
 - [And Even More Linear Programming Problems](#)

A1.1.2.1 Functions

- **A1.2.1.1.1** Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically.
 - [Arithmetic Sequences Practice](#)
 - [Arithmetic Sequences More Practice](#)
 - [Geometric Sequences Practice](#)
 - [Arithmetic and Geometric Sequences Review](#)
 - [General Sequences Practice](#)
- **A1.2.1.1.2** Determine whether a relation is a function, given a set of points or a graph.
 - [Relation and Function Practice](#)
- **A1.2.1.1.3** Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table).
 - [Determining Domain and Range From Graph](#)
- **A1.2.1.2.1** Create, interpret, and/or use the equation, graph, or table of a linear 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 Coordinate Geometry

- **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 line, two points on the line, or the slope and a point on the line. Linear equation may be in point-slope, standard, and/or slope-intercept form.
 - [Writing Linear Equations](#)
 - [Linear Equations Practice for Test](#)
- **A1.2.2.2.1** Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.
 - [Line of Best Fit Practice Worksheet](#)
 - [Line of Best Fit Worksheet #2](#)
- **A1.2.3.1.1** Calculate and/or interpret the range, quartiles, and interquartile range of data.
 - [Quartiles Worksheet](#)
 - [Mean, Median, Mode, Range, Quartiles Homework](#)
 - [Box and Whisker Plot Worksheet](#)
 - [Box and Whisker Practice for Test](#)
- **A1.2.3.2.1** Estimate or calculate to make predictions based on a circle, line, bar graph, measures of central tendency, or other representations.
- **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).
 - [Reading and Understanding Graphs](#)
 - [Reading and Understanding Graphs Practice](#)
 - [Frequency Tables, Line Plots, and Histograms](#)
 - [Frequency Tables, Line Plots, and Histograms Practice](#)
 - [Circle Graphs](#)
 - [Circle Graphs Practice](#)
 - [Stem and Leaf Plots Worksheet](#)
 - [Stem-and-Leaf Plots](#)
 - [Stem-and-Leaf Plots Practice](#)
- **A1.2.3.3.1** Find probabilities for compound events (e.g., find the probability of red and blue, find the probability of red or blue) and represent as a fraction, decimal, or percent.
 - [Theoretical Probability](#)
 - [Theoretical Probability Practice](#)
 - [Sample Spaces](#)
 - [Sample Space Practice](#)
 - [Counting Outcomes](#)
 - [Counting Outcomes Practice](#)
 - [Counting Outcomes and Probability](#)
 - [Counting Outcomes and Probability Practice](#)
 - [Independent and Dependent Events](#)
 - [Independent and Dependent Events Practice 1](#)
 - [Independent and Dependent Events Practice 2](#)
 - [Permutations](#)
 - [Permutations Practice](#)
 - [Combinations](#)
 - [Combinations Practice](#)
 - [Combinations and Permutations Practice](#)
 - [Compound Probability Worksheet](#)
 - [Compound Probability \(Worksheet 6\)](#)
 - [Compound Probability \(Worksheet 7\)](#)

Final Exam Reviews

- [Keystone Practice for Final Exam 1](#)
- [Keystone Practice for Final Exam 2](#)
- [Keystone Practice for Final Exam 3](#)
- [Keystone Practice for Final Exam 4](#)
- [Keystone Practice for Final Exam 5](#)

[MathCrossWordPuzzle](#)

Additional Resources

Keystone Algebra 1 Review: [Keystone Algebra 1 Review](#)

For PDE's complete guide to the Keystone Exam for Algebra 1, click here: [Keystone Algebra 1 Guide](#).