

Unit 1 Foundations for Algebra, Solving Equations and Inequalities

Content Area: **Math**
Course(s): **CP Algebra 1, Accelerated Algebra I, Accelerated Algebra I**
Time Period: **Marking Period 1**
Length: **6**
Status: **Published**

Unit Overview

This unit allows students to master representing quantities, patterns, and relationships. Students will also master solving one variable equations and inequalities.

Link to optional Desmos Curriculum resource:

<https://teacher.desmos.com/collection/61bcc95700581818dff1d4d7?intro-banner-expanded=true>

Enduring Understandings

- Mathematical phrases and real-world relationships can be represented using symbols and operations.
- The relationship between two quantities can be represented in different ways, including tables, equations and graphs.
- When simplifying an expression operations must be performed in the correct order.
- The properties of rational and irrational numbers.
- Reason quantitatively and use units to solve problems.
- Interpret the structure of expressions.
- Create equations that describe numbers or relationships.
- Represent and solve equations and inequalities graphically.
- Equivalent equations are equations that have the same solution(s).
- Ratios and rates can be used to compare quantities and make conversions.
- Proportional reasoning can be used to find missing side lengths in similar figures.
- Percents represent another application of proportions.
- An inequality is a mathematical sentence that uses an inequality symbol to compare the values of two expressions.
- Properties of inequality can be used to solve inequalities.
- An equivalent pair of linear equations or inequalities can be used to solve absolute value equations and inequalities.
- Absolute value equations and inequalities can be solved first by isolating absolute value expression, if necessary, then writing an equivalent pair of linear equations or inequalities.

Essential Questions

How can you represent quantities, patterns, and relationships?

How are properties related to Algebra?

Can equations that appear to be different be equivalent?

How can you solve equations?

What kinds of relationships can proportions represent?

How do you represent relationships between quantities that are not equal?

Can inequalities that appear to be different be equivalent?

How can you solve inequalities?

New Jersey Student Learning Standards (No CCS)

MA.N-RN	The Real Number System
MA.A-SSE.A.1a	Interpret parts of an expression, such as terms, factors, and coefficients.
MA.A-SSE.A.1b	Interpret complicated expressions by viewing one or more of their parts as a single entity.
MA.N-RN.B.3	Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.
MA.N-Q.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
MA.N-Q.A.2	Define appropriate quantities for the purpose of descriptive modeling.
MA.N-Q.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
MA.A-CED.A.4	Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
MA.A-REI	Reasoning with Equations and Inequalities
MA.A-REI.A.1	Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.
MA.A-REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
MA.A-REI.D.10	Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Interdisciplinary Connections

LA.W.9-10.6	Use technology, including the Internet, to produce, share, and update individual or shared writing products, taking advantage of technology's capacity to link to other information and to display information flexibly and dynamically.
SCI.HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.

Technology Standards

TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.E.CS4	Process data and report results.
TECH.8.1.12.F.CS4	Use multiple processes and diverse perspectives to explore alternative solutions.

21st Century Themes/Careers

CAEP.9.2.12.C.3	Identify transferable career skills and design alternate career plans.
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Financial Literacy Integration

PFL.9.1.12.C.1	Compare and contrast the financial benefits of different products and services offered by a variety of financial institutions.
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Instructional Strategies & Learning Activities

- Use graphing calculator to explore tables.
- Spend time with modeling problems.
- Use problems and activities from book involving modeling problems.
- ~~Provide access to online book~~
- Provide access to book pages and problems through Canvas
- Provide access to review keys
- Desmos Curriculum
- Delta Math
- ~~Use Pearson Quizzes to review and reinforce.~~
- ~~Provide access to Pearson Review.~~
- ~~Examview Quizzes to assess HW.~~

Formative Assessments

- Daily homework checks
- Quizzes

- ExamView Homework Check
- Warm-ups

Summative Assessment

- Unit Tests
- Summer Assignment Assessment