Unit 2: Expressions, Equations, & Inequalities
Grade 7 Math

20 Class Meetings

Revised January 2026

Essential Questions

- How does the fundamentals of algebra help to solve real-world problems?
- Why are algebraic representations related and compared to one another?
- How are inequalities similar to and different from equations, and why does that matter?

Enduring Understandings with Unit Goals

EU 1: Expressions can be simplified to find equivalent expressions by applying the order of operations and their properties.

- Generate equivalent expressions with rational coefficients to see how they are related.
- Apply the distributive property and factoring to evaluate expressions.
- Evaluate expressions by combining like terms.

EU 2: Equations can be solved by applying inverse operations.

- Apply the order of operations and properties to solve equations.
- Utilize inverse operations to solve equations.
- Construct simple equations to model and solve real-world situations.

EU 3: Inequalities can be used to solve problems by reasoning about the quantities.

- Apply the order of operations and properties to solve inequalities.
- Graph the solution set of the inequality and interpret it in the context of the problem.
- Solve and graph inequalities on a number line to represent its meaning.
- Construct inequalities to solve real-world word problems.

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Standards

Common Core State Standards:

- **7.EE.A.1:** Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.
- **7.EE.A.2:** Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.
- **7.EE.B.3:** Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.
- **7.EE.B.4:** Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
- **7.EE.B.4.A:** Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.
- **7.EE.B.4.B:** Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.
- **7.NS.A.3:** Solve real-world and mathematical problems involving the four operations with rational numbers

ISAAC Vision of the Graduate Competencies

Competency 1: Write effectively for a variety of purposes.
Competency 2: Speak to diverse audiences in an accountable manner.
Competency 3: Develop the behaviors needed to interact and contribute with others on a team.
Competency 4: Analyze and solve problems independently and collaboratively.
Competency 5: Be responsible, creative, and empathetic members of the community.

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Unit Content Overview

1. **Numerical and Algebraic Expressions**
    - Evaluate expressions using ordering of operations
    - Write expressions for situations
    - **Vocabulary and Key Terms –** Coefficient, Constant, Distributive property, Equal, Equivalent, Evaluate, Expanded, Expression, Factored, False, Like terms, Order of Operations (PEMDAS), Parentheses, Represent, Signed numbers, Simplify, Solution, Times as many as, Times as much as, Term, True, Unknown quantity, Value, Variable

2. **Equivalent Expressions**
    - Expand expressions using the distributive property
    - Factor expressions using the greatest common factor
    - Expand and factoring expressions with negative rational numbers
    - Simplify expressions by combining like terms
    - Compare algebraic expression to variable expression
    - Translate verbal expressions into numerical expressions
    - Translate numerical expressions into verbal expressions
    - Solve multi-step real-world problems involving rational numbers
    - **Vocabulary and Key Terms –** Balance, Combine like terms, Coefficient, Constant, Distributive property, Equal, Equation, Equivalent, Evaluate, Expanded, Expression, Factored, False, Like terms, Order of operations (PEMDAS), Parentheses, Represent, Signed numbers, Simplify, Solution, Table, Tape Diagram, Times as many as, Times as much as, Term, True, Unknown quantity, Value, Variable

3. **Solving One-, Two-, and Multi-Step Equations**
    - Use the Addition and Subtraction Properties of Equality
    - Use the Multiplication and Division Properties of Equality
    - Solve equations using reciprocals
    - Write equations to solve world problems
    - Solve equations that require combining like terms
    - Solve equations using the distributive property or factoring
    - Calculate an equation that contains fractions
    - Solve equations that contains decimals
    - Write equations to solve word problems
    - **Vocabulary and Key Terms –** Balance, Combine like terms, Coefficient, Constant, Diagram, Distributive property, Equal, Equation, Equivalent, Evaluate, Expanded, Expression, Factored, False, Like terms, Order of operations (PEMDAS), Parentheses, Represent, Signed numbers, Simplify, Solution, Table, Tape Diagram, Times as many as, Times as much as, Term, True, Unknown quantity, Value, Variable

4. **Solving Inequalities**
    - Solve and graph one-step inequalities on a number line
    - Write and solve inequalities with distributive property
    - Use greater than, less than, and equal to signs

- Solve inequalities with negative coefficients
- Solve word problems with inequalities
- **Vocabulary and Key Terms –** Balance, Combine like terms, Coefficient, Constant, Distributive property, Endpoint, Equal, Equation, Equivalent, Evaluate, Expanded, Expression, Factored, False, Inequality, Is greater than, Is greater than or equal to, Is less than, Is less than or equal to, Length, Like terms, Number line, Order of Operations (PEMDAS), Parentheses, Ray, Represent, Signed numbers, Simplify, Solution, Solution set, Table, Tape Diagram, Times as many as, Times as much as, Term, True, Unknown quantity, Value, Variable

Interdisciplinary Connection:

- Language Arts – Word Problems
- Science – Word Problems

Daily Learning Objectives with *TWPS Activities*

Students will be able to…

- Simplify and justify expressions with rational coefficients using the distributive property. *
  - *TWPS – Would You Rather Halloween Edition (Ghost and Pumpkin).*
  - *TWPS – Which of the three statements is a lie? Halloween Fractions Edition. Explain using mathematical reasoning.*
- Apply expanding and factoring of linear expressions of rational coefficients.
  - *TWPS – Explain the student's error in factoring the given expression using mathematical reasoning.*
- Distinguish and combine like terms of rational numbers.
  - *TWPS – Find the error in simplifying the expression by combining like terms. Explain using mathematical reasoning.*
- Evaluate and simplify expressions using the distributive property and combining like terms.
  - *TWPS – Describe how you would simplify the given expression using the distributive property and combining like terms. Explain using mathematical reasoning.*
- Solve one-step equations with a variable by applying the inverse operation (adding/subtracting & multiplying/dividing). *
  - *TWPS – Given the one-step equation, explain how you think you would solve for x in your own words. Explain using mathematical reasoning.*
  - *TWPS – Given a one-step equation, describe the steps to solve it. Explain using mathematical reasoning.*
- Write and solve one-step equations for real-life situations.
  - *TWPS – Choose which student solved the one-step equation correctly (Eva and Jesiah). Explain using mathematical reasoning.*
- Solve two-step equations with a variable by applying the inverse to both sides.
  - *TWPS – Given a two-step equation, use your background knowledge of solving one-step equations to describe the error in solving it. Explain using mathematical reasoning.*

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- Write and solve two-step equations for real-life situations.
    - *TWPS – Explain the steps we use to solve any two-step equation. Explain using mathematical reasoning.*
- Synthesize knowledge of solving equations to solve inequalities and construct graphs for the solution set of inequalities.
    - *TWPS – In your own words, describe what an inequality is and what it means mathematically. Explain using mathematical reasoning.*
- Solve inequalities that involve multiplying or dividing by a negative coefficient.
    - *TWPS – Describe the similarities and differences of an equation and an inequality. Explain using mathematical reasoning.*
- Write and solve real-life, single- and multi-step inequalities.
    - *TWPS – Can you think of an example in everyday life of using an inequality (more/less than or equal to and more/less than)? Explain using mathematical reasoning.*

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Instructional Strategies/Differentiated Instruction
● TWPS ● Whole group instruction ● Guided notes ● Student-led instruction ● Small group instruction ● Independent problem-solving ● Collaborative problem-solving ● Cross-curricular problem solving (independent and collaborative) ● Accountable Talk ● Manipulatives ● Homework ● Highlighted words ● Fill in the blanks ● Access to multiplication chart ● Access to calculator ● Color coded notes ● Pre-teaching/Reteaching **EL DIFFERENTIATED INSTRUCTION:** ● Word Walls with visuals ● TWPS (Think, Write, Pair, Share) ● Pre-reading strategies ● Culturally responsive teaching ● Explicit Modeling ● Key Vocabulary ● Graphic Organizers ● Strategic Grouping ● Non-verbal Assessments

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Assessments

FORMATIVE ASSESSMENTS:

- Warm-ups (SBAC)
- Whiteboards
- Mid-class check-ins
- Exit Slips
- Accountable Talk Discussions
- Do Now
- Student-led instruction
- Homework
- Performance Task – Back to School Shopping
  - Summative Performance Task Assessment Rubric

SUMMATIVE ASSESSMENTS:

- Pear Assessment Quiz 1 - EU 1 & 2
- Pear Assessment Quiz 2 – EU 3
- Unit 2 Test – EU 1, 2, and 3
- Performance Task – Back to School Shopping

Unit Task

Unit Task Name: Back to School Shopping Performance Task

Description: Students will use information learned in this unit to write algebraic expressions (EU 1), write and solve equations, and explain their sequence of operations use to solve each equation (EU 2) about the cost of back-to-school shopping. Students will interpret the meaning of a variable in the context of a given real-life scenario and will write a real-life scenario given an equation/inequality (EU 3). They will justify all work with written explanations.

Evaluation: Summative Performance Task Assessment Rubric

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Unit Resources
● Worksheets ● Calculator ● Laptops ● SBAC Prep Online ● Pear Assessment ● Blooket ● 99math.com ● Individual Whiteboards ● 2 Truths & One Lie ● State Common Core Standards Transition Tasks ● Online resources

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