Unit 2a Expressions Equations and Inequalities

Content Area: **Math**
Course(s): **Math 6 Honors**
Time Period: **Marking Period 2**
Length: **Weeks 1-6 Into Math Advanced 1 Unit 2**
Status: **Published**

Essential Questions

- How can you generate equivalent numerical expressions?
- How can you generate equivalent algebraic expressions?
- How can you use equations and relationships to solve real world problems?
- How can you use relationships in two variables to solve real world problems?

Big Ideas

- Understanding the concept of variables and using them to represent unknown quantities in mathematical expressions.
- Developing an understanding of the relationship between operations and expressions, including the use of parentheses and brackets.
- Solving one-step equations and inequalities using addition, subtraction, multiplication, and division.
- Applying the order of operations to simplify expressions and solve equations.
- Recognizing and generating equivalent expressions using properties of operations.
- Using variables to write and solve real-world problems involving equations and inequalities.
- Analyzing patterns and relationships to create and solve equations.
- Interpreting and representing relationships between variables using tables, graphs, and equations.

Enduring Understandings

Expressions and Equations

6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents.

6.EE.A.2a Write expressions that record operations with numbers and with letters standing for numbers. For example, express the calculation “Subtract y from 5” as 5 – y.

6.EE.A.2b . Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient,

coefficient); view one or more parts of an expression as a single entity.

6.EE.2c Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations). For example, use the formulas V = s3 and A = 6 s2 to find the volume and surface area of a cube with sides of length s = 1/2.

6.EE.A.3 Apply the properties of operations to generate equivalent expressions. For example, apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x; apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6 (4x + 3y); apply properties of operations to y + y + y to produce the equivalent expression 3y.

6.EE.A.4 . Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.

6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

6.EE.B.7 . Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.

6.EE.B.8 Write an inequality of the form x > c or x < c to represent a constraint or condition in a real world or mathematical problem. Recognize that inequalities of the form x > c or x < c have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation d = 65t to represent the relationship between distance and time.

Expressions and Equations

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.

The Number System

7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.

Mathematical Practices Focus

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. Lesson 7.2

2. Reason abstractly and quantitatively. Lesson 6.2, 6.4, 6.6, 7.1, 7.3, 7.4, 7.5, 7.6, 8.2, 8.3

3. Construct viable arguments and critique the reasoning of others. Lesson 6.5

4. Model with mathematics. Lesson 6.3, 7.1, 7.2, 7.3, 7.4, 7.5, 8.1, 8.2,8.3

5. Use appropriate tools strategically. Lesson 8.1

6. Attend to precision. Lesson 6.4, 6.5, 6.6

7. Look for and make use of structure. Lesson 6.1, 6.2, 6.3, 7.2, 7.3, 7.6

8. Look for and express regularity in repeated reasoning. Lesson 6.1