



Unit 3 Expressions, Equations, and Inequalities Math 6

Last Update: August 1, 2025

*Archdiocesan Curriculum > Grade 6 > Math > Length of unit 26 to 32 days

Stage 1: Desired Results					
General Information	Essential Question(s)				
	- How can we represent and evaluate mathematical relationships using algebraic expressions, equations, and exponents? - What strategies can we use to translate real-world situations into algebraic expressions and solve for unknown values? - How can we identify equivalent expressions and simplify or manipulate them to solve problems? - In what ways can we use tables, graphs, and verbal descriptions to model and solve equations or inequalities? - How do different operations (addition, subtraction, multiplication, division) affect the solutions to equations and inequalities in real-life scenarios?				
Enduring Understanding/Knowledge	Vocabulary				
	<table><tr><th>New</th><th>Review</th></tr><tr><td> - base - exponent - evaluate - numerical expression - term - algebraic expression - coefficient - constant - variable - equivalent expression - like terms </td><td> - Angle - Degree - Distributive Property - Order of operations - Perimeter - Associative Property of Addition - Associative Property of Multiplication - Commutative Property of Addition - Commutative Property of Multiplication - Triangle </td></tr></table>		New	Review	- base - exponent - evaluate - numerical expression - term - algebraic expression - coefficient - constant - variable - equivalent expression - like terms
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Students will:					
- Write and find the value of expressions involving exponents. - Write and evaluate numerical expressions for situations. - Write an algebraic expression to represent a situation. - Interpret and evaluate an algebraic expression. - Identify and generate equivalent algebraic expressions.					
Review/Assess					
- Model and write equations to represent real-world situations. - Solve equations that contain addition and subtraction. - Solve equations that contain multiplication and division. - Write and use one-step equations to represent situations and solve problems. - Write and graph inequalities to represent real-world situations.					
Review/Assess					
- Represent an equation in a table or graph. - Write an equation from a verbal description of a relationship. - Write an equation from data represented in a table or graph.					
Review/Assess					

Connections to Catholic Identity / Other Subjects	Differentiation
Religion/Catholic Identity: • Link the order of operations to the order in which things must occur in Catholicism, ie. sacraments are received in a particular order, mass is performed in a particular order, etc.c. • Relate equations using Proverbs 11:1; 16:11. (A false balance is an abomination to the Lord, but a just weight is His delight. A just balance and scales belong to the Lord; all the weights of the bag are His concern.) Other Subject Here: • Constants and variables can be linked to scientific knowledge. • ELA- Expressions are written in words and converted to numerical form. • Relate substitute teachers taking the place of a teacher to substituting numbers in for variables. • Use the greater than/less than symbols to compare values across all subjects. • Relate independent and dependent variables to sciences.	Enrichment • Apply percentages to shopping and saving deals. • Introduce tax and tip (covered in 7th grade) • Create a circle graph using percentages to represent how students spend their day, (ie. sleeping, at school, sports, etc.) Supports • Fraction-Decimal-Percent conversion chart

Standards & Benchmarks

Numerical and Algebraic Expressions:

6.NS.7

Apply the properties of operations (i.e., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions and to justify whether two linear expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them. (E)

6.AF.1

Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values. (E)

6.NS.5

Apply the order of operations and properties of operations (i.e., identity, inverse, commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property) to evaluate numerical expressions with nonnegative rational numbers, including those using grouping symbols, such as parentheses, and involving whole number exponents. (E)

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.A.3

Apply the properties of operations to generate equivalent expressions. Know that expressions are called equivalent when they name the same number regardless of which value is substituted into them. 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 $3y$.

Solve Problems Using Equations and Inequalities:

6.AF.4

Write an inequality of the form $x > c$, $x \geq c$, $x < c$, or $x \leq c$, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Explain that inequalities have infinitely many solutions and how to represent solutions on a number line diagram.

6.AF.3

Solve equations of the form $x + p = q$, $x - p = q$, $px = q$, and $x/p = q$ fluently for cases in which p , q and x are all nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems. (E)

6.AF.2

Demonstrate 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. (E)

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.5

Use substitution to determine whether a given number in a specified set makes an equation or inequality true. Solving an equation or inequality is a process of answering a question: Which values from a specified set, if any, make the equation or inequality true?

Real-World Relationships Between Variables:

6.RP.5

Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (E)

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 in terms of the other quantity. 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.

CCSS.Math.Content.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.

6.EE.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.

6.3.7.1

Use variables to represent two quantities in a situation 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. (MP2, MP8)

Teaching Ideas/Resources

Websites/Resources:

- [Writing Expressions Worksheet](#) – Kuta Software worksheet that practices writing algebraic expressions and verbal expressions.
- [Order of Operations Video](#) – Math Antics is a great resource for videos, this video gives the why and how of using the order of operations.
- [Order of Operations Seek and Solve](#)- Seek and Solve (Scavenger Hunt) with a sheet for students to record answers.
- [Delta Math](#) Website for all Standards
- [Math Aids](#) - Expressions Worksheets
- [Demos](#) - Activity Builder for Expressions and Equations