Lesson 3: Interpreting Formulas and Expressions

Instruction

Georgia Standards of Excellence

MGSE9–12.A.SSE.1★

MGSE9–12.A.SSE.1a★

MGSE9–12.A.SSE.1b★

MGSE9–12.A.APR.1

SMP	
1 ✓	2 ✓
3	4 ✓
5	6
7 ✓	8 ✓

Essential Questions

1. What are the different parts of an algebraic expression?
2. How are real-world scenarios translated into algebraic expressions?
3. How does changing one part of an expression affect the value of the expression?
4. How can a variable and its power be used to determine which terms are like terms?
5. What is the relationship between addition of polynomials and subtraction of polynomials?
6. How can we determine if polynomials are closed under addition, subtraction, or multiplication?

WORDS TO KNOW

algebraic expression	a mathematical statement that includes numbers, operations, and variables to represent a number or quantity
base	the factor being multiplied together in an exponential expression; in the expression a^b, a is the base
binomial	a polynomial with two terms
closure	a system is closed, or shows closure, under an operation if the result of the operation is within the system
coefficient	the number multiplied by a variable in an algebraic expression
constant	a quantity that does not change
constant term	a term whose value does not change
exponent	the number of times a factor is being multiplied together in an exponential expression; in the expression a^b, b is the exponent

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factor	one of two or more numbers or expressions that are multiplied to produce a product
like terms	terms that contain the same variables raised to the same power
monomial	an expression with one term, consisting of a number, a variable, or the product of a number and variable(s)
order of operations	the order in which expressions are evaluated from left to right (grouping symbols, evaluating exponents, completing multiplication and division, completing addition and subtraction)
polynomial	a monomial or a sum of monomials
quadratic expression	an algebraic expression that can be written in the form $ax^2 + bx + c$, where x is the variable, a, b, and c are real numbers, and $a \neq 0$
term	a number, a variable, or the product of a number and variable(s)
trinomial	a polynomial with three terms
variable	a letter used to represent a value or unknown quantity that can change or vary

Recommended Resources

- Khan Academy. "Adding Polynomials."

  http://www.walch.com/rr/00083

  This video tutorial explains how to add polynomials.

- MathIsFun.com. "Algebra—Basic Definitions."

  http://www.walch.com/rr/00098

  This website gives an overview of the important vocabulary for this lesson. Color-coded expressions help users visualize the differences between similar terms.

- MathIsFun.com. "Multiplying Polynomials."

  http://www.walch.com/rr/00084

  This website shows what a polynomial is, and explains how to multiply them.

- MathIsFun.com. "Polynomials."

  http://www.walch.com/rr/00085

  This website defines polynomials and their components, and provides examples of expressions that are polynomials as well as expressions that are not.

- Math-Play.com. "Algebraic Expressions Millionaire Game."

  http://walch.com/rr/CAU1L1Expressions

  "Algebraic Expressions Millionaire Game" can be played alone or in two teams. For each question, players have to identify the correct mathematical expression that models a given expression.

- Quia. "Algebraic Symbolism Matching Game."

  http://walch.com/rr/CAU1L1AlgSymbolism

  In this matching game, players pair each statement with its algebraic interpretation. There are 40 matches to the provided game.

- Quia. "Rags to Riches: Combining Like Terms."

  http://www.walch.com/rr/00099

  Players combine like terms to simplify expressions in this multiple-choice game modeled on the TV show, *Who Wants to Be a Millionaire?* Players can use up to three hints on their quest to reach the million-dollar question.