



Math 6 Unit 3

Expressions

Volume 1 Issue 3

References

Helpful Links:

<http://thinkingblocks.com>

<http://www.khanacademy.org>

<http://www.arcademicskillbuilders.com>

<http://hoodamath.com>

<http://www.ixl.com/math/grade-6/evaluate-variable-expressions-with-whole-numbers>

<http://www.ixl.com/math/grade-6/evaluate-variable-expressions-involving-decimals-fractions-and-mixed-numbers>

Georgia Math Grade 6 Textbook Connection:
Ch. 5, Lessons 1-7

Georgia Math Grade 6 Textbook Online:

connected.mcgraw-hill.com

<https://www.mheonline.com/apps/>

Dear Parents

In this unit students will:

- Represent repeated multiplication with exponents
- Evaluate expressions containing exponents to solve mathematical and real world problems
- Translate verbal phrases and situations into algebraic expressions
- Identify the parts of a given expression
- Use the properties to identify equivalent expressions
- Use the properties and mathematical models to generate equivalent expressions

Concepts Students will Use & Understand

- Variables can be used as unique unknown values or as quantities that vary.
- Exponential notation is a way to express repeated products of the same number.
- Algebraic expressions may be used to represent and generalize mathematical problems and real life situations
- Properties of numbers can be used to simplify and evaluate expressions.
- Algebraic properties can be used to create equivalent expressions
- Two equivalent expressions form an equation.

Vocabulary

- **Algebraic expression:** A mathematical phrase involving at least one variable and sometimes numbers and operation symbols.
- **Associative Property of Addition:** The sum of a set of numbers is the same no matter how the numbers are grouped.
- **Associative Property of Multiplication:** The product of a set of numbers is the same no matter how the numbers are grouped.
- **Coefficient:** A number multiplied by a variable in an algebraic expression.
- **Commutative Property of Addition:** The sum of a group of numbers is the same regardless of the order in which the numbers are arranged
- **Commutative Property of Multiplication:** The product of a group of numbers is the same regardless of the order in which the numbers are arranged.
- **Constant:** A quantity that does not change its value.
- **Distributive Property:** The sum of two addends multiplied by a number is the sum of the product of each addend and the number.
- **Exponent:** The number of times a number or expression (called base) is used as a factor of repeated multiplication. Also called the power.
- **Like Terms:** Terms in an algebraic expression that have the same variable raised to the same power. Only the coefficients of like terms are different.
- **Order of Operations:** The rules to be followed when simplifying expressions.
- **Term:** A number, a variable, or a product of numbers and variables.
- **Variable:** A letter or symbol used to represent a number or quantities that vary

Try <http://intermath.coe.uga.edu/dictionary/homepg.asp> or <http://www.amathsdictionaryforkids.com/> for further examples.

Symbols

Expression:

$$8x + 4y$$

Terms:

$$8x$$

$$4y$$

Example 1

What is the value of the expression below when $m = 5$ and $n = 0.5$?
 $m^2 + (n + 6)$

Example 2

Luci bought n ride tickets at the carnival. Bianca bought 4 times as many ride tickets as Luci. Write an expression that represents the total number of ride tickets that Luci and Bianca bought.

Example 3

Write an equivalent expression for $9(p + 8)$.

Example 4

Simplify the expression using exponents: $5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot 5 \cdot n \cdot n + 4 \cdot 4 \cdot 4$

Key

Example 1

$$m^2 + (n + 6); m = 5 \text{ and } n = 0.5$$

Substitute the variable with numerical value

$$m^2 + (n + 6)$$

$$5^2 + (0.5 + 6)$$

Use orders of operations to solve

$$5^2 + (0.5 + 6)$$

$$5^2 + 6.5$$

$$25 + 6.5$$

$$\boxed{31.5}$$

Example 2

$$n + 4n$$

Example 3

$$9(p + 8)$$

Use the distributive property to write an equivalent expression

$$9(p) + 9(8)$$

$$9p + 72$$

Example 4

$$5^7 n^2 + 4^3$$