

NAME _____

DATE _____

Module 2 Writing and Simplifying Algebraic Expressions
Lesson 3 Identifying Algebraic Properties



**guided
notes**

Lesson Objectives

- Recognize and use the Commutative and Associative Properties of Addition and Multiplication.
- Recognize the identity elements and inverses for addition and multiplication and use their respective properties.
- Recognize and use the Distributive Property of Multiplication over Addition.

The _____ Property of Addition states that when you add two numbers, the order in which you add them does not matter, or for all real numbers a and b , $a + b = b + a$.

The _____ Property of Addition states that when you are adding, the way that you group the numbers does not change the sum, or for all real numbers a , b , and c , $(a + b) + c = a + (b + c)$.

The Commutative Property of Multiplication states that order in multiplication does not matter, or for all real numbers a and b , _____.

The Associative Property of Multiplication states that when you multiply, the way you regroup the factors does not matter, or for all real numbers a , b , and c . _____

1 $(4.3 + 2) + 8 = 4.3 + (2 + 8)$ _____

2 $6(5 \cdot 3) = 6(3 \cdot 5)$ _____

_____ and _____ are not commutative.

The _____ Property of Addition says that when you add zero to a number the sum is that number, or for all real numbers a , $a + 0 = 0 + a = a$. _____ is the identity element for addition.

The _____ says that when you

multiply by zero, the product is zero, or for any real number a ,

$$a \cdot 0 = 0 \cdot a = 0.$$

_____ is the identity element for multiplication. The Identity

Property of Multiplication states that for any real number a ,

_____.

Another name for reciprocal is _____. Examples of

multiplicative inverses are $\frac{1}{4}$ and _____.

The _____ states that the

multiplicative inverse, or reciprocal, of any real number a , where $a \neq 0$,

$$\text{is } \frac{1}{a}. a \cdot \frac{1}{a} = 1.$$

When you add opposites, or _____, the sum is zero.

The additive inverse, or opposite of any real number a is $-a$ such that

_____.

3 $7 + 0 = 7$ _____

4 Write an equation that illustrates the Zero Property of Multiplication.

The _____ of Multiplication over

Addition tells us that $50(84 + 10) = 50(84) + 50(10)$, or for all real numbers

a , b , and c , _____.

5 $12(5 + 9) =$ _____

