

# Algebra

Unit 1 // Lesson 1

Name:

Date:

Period: 1 2 3 4 5 6

Standards: 25.0

Holt: 1.2 + 1.4

Objective: To identify and use properties of real numbers

Warm Up

Evaluate:  $4x + 8y - 6z$  for  $x = 2$ ,  $y = -3$  and  $z = 6$

Property	Words	Numbers	Algebra
<b>Additive Identity</b> [0]	The sum of a number and 0, the additive identity is the original number		
<b>Multiplicative Identity</b> [1]	The product of a number and 1, the multiplicative identity, is the original number		
<b>Additive Inverse</b>	The sum of a number and its opposite, or additive inverse, is 0		
<b>Multiplicative Inverse</b>	The product of a nonzero number and its reciprocal, or multiplicative inverse, is 1		

Example 1

Q1: What is the additive inverse of  $-9$  ?  $9$

Q2: What is the multiplicative inverse of  $-9$  ?  $-1/9$

Q3: What is the additive inverse of  $3$  ?  $-3$

Q4: What is the multiplicative inverse of  $1/3$  ?  $3$

Property	Words	Numbers	Algebra
<b>Commutative</b>	You can add or multiply real numbers in any order without changing the result		
<b>Associative</b>	The sum or product of three or more real numbers is the same regardless of the way the numbers are grouped.		
<b>Distributive</b>	When you multiply a sum by a number, the result is the same whether you add then multiply or whether you multiply each term by the number and then add the products		

Example 2

Q5: Which property?  $(A + 8)5 = 5A + 40$

Q6: Which property?  $(7 + J) + (-9) = 7 + (J - 9)$

What is a **reciprocal**?

Q7:

Q8:

Q9:

What is an **opposite reciprocal**?

Q10:

Q11:

Q12:

### Common Vocabulary:

Addition:

Sum

Subtraction:

Difference

Multiplication

Product

Division

Quotient

### Order of Operations [1.4]

Q: How can you remember them?

- 1 Parentheses
- 2 Exponents
- 3 Multiply and Divide from left to right
- 4 Add and Subtract from left to right

### Examples and Practice

Example 1: Evaluate:

$x - 2xy - 3y$  for  $x = 2$  and  $y = -4$

Example 2: Evaluate:

$-4x + 2x^2 - 3y^2$  for  $x = 3$  and  $y = -2$

Exercise 1: Evaluate:

$-a + 5az - 4z$  for  $x = -2$  and  $y = 1$

Exercise 2: Evaluate:

$-4x^3 + 2g^2 - 3y^2$  for  $x = -1$  and  $g = 3$

Example 3: Simplify:

$x^3 + 2x^6 - 4x^6 + 4x^3$

Example 4: Simplify:

$x(4y - 5xy) + 7xy - 6x^2y$

Exercise 3: Simplify:

$4x^3 + 7x^2 + 8x^4 - 7x^4$

Exercise 4: Simplify:

$2x(4x - 5xy) + 7xy - 6x^2$