Math 6/7 Unit 8

Operations with Rational Numbers

**Volume 1 Issue 8**

Dear Parents,

Below is information for Unit 1, Operations with Rational Numbers. Look for additional newsletters for future units.

# Operations with Rational Numbers

*By the end of this unit, students will understand:*

* Computation with positive and negative numbers is often necessary to determine relationships between quantities.
* Models, diagrams, manipulatives and patterns are useful in developing and remembering algorithms for computing with positive and negative numbers.
* Properties of real numbers hold for all rational numbers.
* Positive and negative numbers are often used to solve problems in everyday life.
* Convert fractions to decimals.

**Vocabulary**

**Absolute Value:** The distance between a number and zero on a number line. The symbol for absolute value is| |

**Associative Property:** In addition or multiplication, the result of the expression will remain the same regardless of grouping: a+(b+c)=(a+b)+c

**Commutative Property:** The sum or product of numbers is the same no matter how the numbers are arranged: a+b=b+a

**Distributive Property:** The sum of two addends multiplied by a number will be the sum of the product of each addend and the number: a(b+c)=ab+ac

**Integer:** The set of whole numbers & their opposites

Example:{…-2, -1, 0, 1, 2,…}

**Inverse Operation:** Operations that undo each other or are opposite, such as addition and subtraction

**Natural numbers:** Counting numbers that begin with 1.

Example: {1, 2, 3, 4, …}

**Rational numbers:** The set of numbers that can be written in the form of  where a & b are integers and b0.

**Whole numbers:** The set of all natural numbers and zero

For examples & help with vocabulary, visit:

[*http://intermath.coe.uga.edu/*](http://intermath.coe.uga.edu/)



## Textbook Connection

**Glencoe Georgia Math Grade 6 Plus**:

Volume 2 Ch. 9 Lessons 1-6, 10

Web Resources

<http://mathbitsnotebook.com/Algebra1/RealNumbers/RNSignedNumbers.html>

<http://mathbitsnotebook.com/Algebra1/RealNumbers/RNSignedNumbersPractice.html>

<http://www.sheppardsoftware.com/mathgames/fruitshoot/FS_Mixed_Integers.htm>

<http://www.mathplayground.com/ASB_OrbitIntegers.html>

<http://www.mathgoodies.com/games/integer_game/>

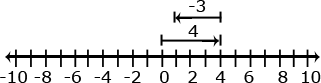
<http://www.math-play.com/math-racing-subtracting-integers-game/math-racing-subtracting-integers-game.html>

<http://www.mathplayground.com/ASB_IntegerWarp.html>

Answers:

1. 3(-4) + (7 - -3)²- 5(5)= -12+10²-25= -12+100-25= 63

2. 36j – 54

3.  4 + (-3) = 1 or (-3) + 4 = 1

4. -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 + -32 = 12 ($-32)= $-384

5. 

1. Evaluate: 3c + (7 – a)²- 5b when a = -3, b = 5, c = -4

2. Simplify: 9(4j - 6)

3. You have $4 and you need to pay a friend $3. What will you have after paying your friend? Represent your answer on a number line.

4. Your cell phone bill is automatically deducting $32 from your bank account every month. How much will the deductions total for the year?

5. It took a submarine 20 seconds to drop to 100 feet below sea level from the surface. What was the rate of the descent?

### Practice Problems

**Company Name**

**Street Address**

**City, State 00000**