Unit 1: Foundations

Algebra 1

•Notes •Practice •Review •Tests•

Printer Friendly!

NO PREP

Detailed Answer Key!

Solid Foundation for Algebra

Mrs. Holman's Classroom

About Me

I'm an online educator and SAHM who LOVES to create math curriculum!

Follow My Store!

Connect with me

Terms of Use

YOU MAY...

- Share with your students via email or secure learning platform such as Google Classroom
- Make copies for your students
- Purchase additional licenses for other teachers
- Direct others to our website

YOU MAY NOT...

- Share with colleagues without purchasing additional licenses
- Store on shared or team drives
- Use for commercial purposes (like Outschool) without a commercial license (available separately)
- Post any portion of this content on any site that is accessible by others
- Replicate any portion of this content and sell or distribute to others.

Clip Art & Fonts by...

Lindsay Bowden Teacher Resources

Biddy's Math Binder

Kaitlynn Albani Fonts + Illustrations

This Preview contains several examples of the worksheets and notes included in this resource, but it does not show all 115+ of the pages.

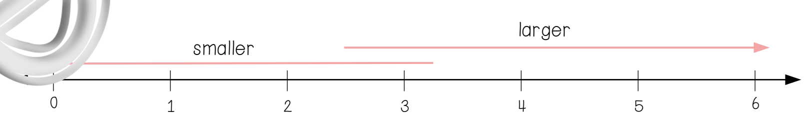
I hope you love it!

Algebra I Unit 1: Foundations Outline

	Lesson / Concept
Day 1	Lesson 1.1 Intro to Whole Numbers
Day 2	Lesson 1.2 Use the Language of Algebra
Day 3	Lesson 1.2 Use the Language of Algebra Practice
Day 4	Lesson 1.3 Add and Subtract Integers
Day 5	Lesson 1.3 Add and Subtract Integers Practice
Day 6	Lesson 1.4 Multiply and Divide Integers
Day 7	Lesson 1.5 Visualize Fractions
Day 8	Lesson 1.6 Add and Subtract Fractions
Day 9	Lesson 1.7 Decimals
Day 10	Lesson 1.7 Decimals Practice
Day 11	Lesson 1.8 The Real Numbers
Day 12	Lesson 1.8 The Real Numbers Practice
Day 13	Lesson 1.9 Properties of Real Numbers
Day 14	Lesson 1.9 Properties of Real Numbers Practice
Day 15	Lesson 1.10 Systems of Measurement
Day 16	Lesson 1.10 Systems of Measurement Practice
Day 17	Unit 1 Review Day 1
Day 18	Unit 1 Review Day 2
Day 19	Unit 1 Practice Test
Day 20	Unit 1 Test

Name:____ Date: _________ Period: ______

Place Value with Whole Numbers notes

Vocabulary		
Term	Definition	Example
Counting Numbers (Natural)	Basic numbers used to count objects	1, 2, 3, 4....
Whole Numbers	Counting numbers plus zero	0, 1, 2, 3, 4, 5...
Number Line		

Place Value

Our number system is called a **place value system,** because the value of a digit depends on its position in a number. The place values are separated into groups of three, which are called periods. The periods are ones, thousands, millions, billions, trillions, etc. When we write a number, commas separate the periods.

To write a number in words, write the number in each period, followed by the name of the period, without the "s" at the end. Start at the left, where the period has the largest value. The ones period is not named. The commas separate the periods, so wherever there is a comma in the number, put a comma between the words. The number 74,218,369 is written as seventy-four million, two hundred eighteen thousand, three hundred sixty-nine.

Place Value														
Trillions			Billions			Millions			Thousands			Ones		
Hundred trillions	Ten trillions	Trillions	Hundred billions	Ten billions	Billions	Hundred millions	Ten millions	Millions	Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones
								5	2	6	8	9	0	1

Name:____ Date: ________ Period: ______

Place Value with Whole Numbers Practice

HOW TO NAME A WHOLE NUMBER WITH WORDS • Step 1. Start at the left and name the number in each period, followed by the period name. • Step 2. Put commas in the number to separate the periods. • Step 3. Do not name the ones period. Example: Name the number 8,934,242,354 using words.	
Name the number using words.	
9,825,3[illegible],[illegible],390	19,864,323,619,005
HOW TO WRITE A WHOLE NUMBER USING DIGITS • Step 1. Identify the words that indicate periods. (Remember, the ones period is never named.) • Step 2. Draw three blanks to indicate the number of places needed in each period. Separate the periods by commas. • Step 3. Name the number in each period and place the digits in the correct place value position. Example: Write *nine billion, two hundred forty-six million, seventy-three thousand, one hundred eighty-nine* as a whole number using digits.	
Write the number using digits.	
Three billion, two hundred sixty-six million, eight hundred fourteen thousand, five hundred [illegible]	Twelve billion, nine hundred forty-one million, eight hundred five thousand, two hundred six

Name:____ Date: _________ Period: ______

Rounding Whole Numbers Notes

Rounding Numbers

In 2013, the U.S. Census Bureau estimated the population of the state of New York as 19,651,127. We could say the population of New York in 2013 was approximately 20 million. In several cases, like population, you don't need an exact number; an approximate number is good enough.
The process of approximating a number is called **rounding.** Numbers are rounded to a specific place value, depending on how much accuracy is needed. Saying that the population of New York is approximately 20 million means that we rounded to the millions place.

HOW TO ROUND WHOLE NUMBERS

- Step 1. Locate the given place value and mark it with an arrow. All digits to the left of the arrow do not change.
- Step 2. Underline the digit to the right of the given place value.
- Step 3. Is this digit greater than or equal to 5?
  - Yes–add a one to the digit in the given place value.
  - No–do <u>not</u> change the digit in the given place value.
- Step 4. Replace all digits to the right of the given place value with zeros.

Example: Round 203,958 to the nearest: ⓐ hundred ⓑ thousand ⓒ ten thousand

Your Turn

Round each number to the nearest ⓐ hundred ⓑ thousand ⓒ ten thousand	
307,971	7[illegible]952

Name:____ Date: ________ Period: ______

Identify Multiples & Apply Divisibility *notes*

Vocabulary		
Term	**Definition**	**Example**
Multiples	A number is a **multiple** of *n* if it is the product of a counting number and *n*.	Multiples of 2 are 2, 4, 6, 8, 10, 12 …
Divisible	If a number *m* is a multiple of *n*, then *m* is **divisible** by *n*.	12 is divisible by 3, because 12 divided by 3 is 4.
Divisibility Test	A number is divisible by: • 2 if the last digit is 0, 2, 4, 6, or 8. • 3 if the sum of the digits is divisible by 3. • 5 if the last digit is 5 or 0. • 6 if it is divisible by both 2 and 3. • 10 if it ends with 0.	

Example

Is 5,635 divisible by 2? By 3? By 5? By 6? By 10?

Your Turn

Determine whether each number is divisible by 2, by 3, by 5, by 6, and by 10.	
4,832	3,865

Name:____ Date: ________ Period: ______

Prime Factorization notes

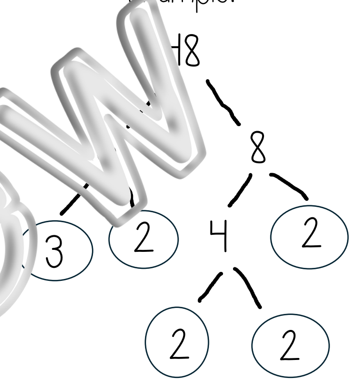
Vocabulary		
Term	Definition	Example
Factors	In the expression $a \cdot b$, both a and b are called **factors**. If $a \cdot b = m$ and both a and b are integers, then a and b are factors of m.	The factors of 12 are 1, 2, 3, 4, and 6, because 1 x 12 = 12, 3 x 4 = 12, and 2 x 6 = 12
Prime Number	A counting number greater than 1, whose only factors are 1 and itself.	1, 2, 3, 5, 7, 9, 11, 13, 17....
Composite Number	A counting number that is not prime. A composite number has factors other than 1 and itself.	4, 6, 8, 10, 12, 14, 15, 16, 18...
Prime Factorization	The product of prime numbers that equals the number	The prime factorization of 12 is 2 x 2 x 3.

HOW TO FIND THE PRIME FACTORIZATION OF A COMPOSITE NUMBER

There are several different methods to finding the prime factorization of a composite number. One common method is the **factor tree method.**

1. Find two factors whose product is the given number and use these numbers to create two branches.
2. If a factor is prime, that branch is complete. Circle the prime, like a bud on the tree.
3. If a factor is not prime, write it as the product of two factors and continue the process.
4. Write the composite number as the product of all the circled primes.

Example:



48 = 2 x 2 x 2 x 2 x 3

Your Turn

Find the prime factorization of 126.

Name:____ Date: _________ Period: ______

Finding the LCM *notes*

Least Common Multiple (LCM)

One of the reasons we look at multiples and primes is to use them to find the **least common multiple** (LCM) of two numbers. LCMs are useful when we add and subtract fractions with different denominators. The **least common multiple** (LCM) of two numbers is the smallest number that is a multiple of both numbers.

Listing Multiples Method

To find the least common multiple of 12 and 18, we list the first few multiples of 12 and 18:

12: 12, 24, 36, 48, 60, 72, 84...

18: 18, 36, 54, 72, 90...

The multiples that are found in both lists are your common multiples. The smallest number in that common least is your LCM.

Prime Factors Method

To find LCM using prime factors method:

1. Write each number as a product of primes.
2. List the primes of each number. Match them vertically when possible.
1. Bring down the number from each column.
2. Multiply the factors.

$12 = 2 \cdot 2 \cdot 3$

$18 = 2 \cdot 3 \cdot 3$

LCM = 2 x 2 x 3 x 3

LCM = 36

your Turn

Find the LCM using the Prime Factors method	
9 and 12	15 and 24

Name:____ Date: _________ Period: ______

Unit 1.1: Intro to Whole Numbers Practice

Find the given place value of each digit in the given numbers.

1. 51,493

ⓐ 1
ⓑ 4
ⓒ 9
ⓓ 5
ⓔ 3

2. [illegible]4,915,[illegible]132

ⓐ 7
ⓑ [illegible]
ⓒ 5
ⓓ [illegible]
ⓔ [illegible]

Name each number using words.

3. 5,902

4. 37,889,005

5. 34,[illegible]437

6. 53,000,000,454

Write each number using whole digits.

7. Four hundred twelve

8. sixty-two thousand, fifteen

9. Three billion, two hundred three million, five hundred fifty-two thousand, four

10. Eleven million, forty-[illegible] thousand, one hundred sixty-three

Round each number to the nearest ⓐ ten, ⓑ hundred, and ⓒ thousand.

11. 2,931

12. 481,[illegible]

13. 63,940

14. 4,287,965

Name:____ Date: _________ Period: ______

Unit 1.1: Intro to Whole Numbers Practice

Use the divisibility tests to determine if each number is divisible by 2, [illegible] 6, and 10.			
15. 84	16. 942	17. [illegible],335	18. 39,075

Find the prime factorization of each number.		
19. 86	20. [illegible]400	21. 2,520

Find the least common multiple using any method.	
22. 20, 30	23. 8, 12
24. 55, 88	25. 12, 16

Answer the following questions.	
26. Give an everyday example where it helps to round numbers.	27. What is the difference between prime numbers and composite numbers?

Name:_______________________________________ Date: ________ Period: ______

Use Variables and Algebraic Symbols notes

Vocabulary		
Term	**Definition**	**Example**
Variables	A letter that represents a number whose value may change	x, y, z The "x" in 2x + 3 = 5
Constants	A number whose value always stays the same	0, 1, 2, 3, 4, 5…

Using Variables and Symbols in Algebra

Let's say that Lily is 6 and Joe is 12. You know that Lily is 6 years younger than Joe. No matter what Lily's age, Joe will always be 6 years older, and no matter how old Joe is, Lily will always be 6 years younger.

In the language of algebra, we say that Lily's age and Joe's age are **variables**, and the 6 is a **constant.** The ages change ("vary") but the 6 years between them always stay the same ("constant").

In algebra, we use letters of the alphabet to represent **variables.** We could call Lily's age L and Joe's age J, then we could use $J - 6$ to represent Lily's age.

The letters we used to represent the changing ages are called variables. The most commonly used letters to represent variables are x, y, a, b, and c.

Writing Algebraically

To write algebraically, we need operation symbols as well as numbers and variables. These operations are the ones you have seen all through elementary and middle school! Some of them have new symbols that you may or may not have seen before.

Operation	Notation	Say:	The result is…
Addition	a + b	a plus b	The sum of a and b
Subtraction	a – b	a minus b	The difference of a and b
Multiplication	a · b; ab; (a)(b); (a)b; a(b)	a times b	The product of a and b
Division	a ÷ b; a/b; b⟌a	a divided by b	The quotient of a and b, where a is the dividend and b is the divisor.

Name:____ Date: _________ Period: ______

Exponents notes

Exponents

Suppose we need to multiply 2 nine times. We could write this as
$2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$.

This is tedious and it can be hard to keep track of all those 2s, so we use exponents. We write $2 \cdot 2 \cdot 2$ as 2^3 and $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2$ as 2^9.

In expressions such as 2^3, the 2 is called the ***base*** and the 3 is called the ***exponent***. The exponent tells us how many times we need to multiply the base.

We read 2^3 as "two to the third power" or "two cubed."

base → 2^3 ← exponent

We say 2^3 is in *exponential notation* and $2 \cdot 2 \cdot 2$ is in *expanded notation*.

Anything to the zero power is equal to 1.

Examples

Simplify:

3^4 $\quad$ 5^6 $\quad$ x^2

your Turn

Simplify:	
5^3	1
7^2	0^5

Name:____ Date: _________ Period: ______

Simplifying Expressions Using Order of Operations *notes*

Simplifying Expressions

To **simplify an expression** means to do all the math possible.
For example, to simplify $4 \cdot 2 + 1$ we'd first multiply $4 \cdot 2$ to get 8 and then add the 1 to get 9.
I like to work down the page, writing each step of the process below the previous step to keep things organized. The example just described would look like this:

$$4 \cdot 2 + 1$$
$$8 + 1$$
$$9$$

By not using an equal sign when you simplify an expression, you may avoid confusing expressions with equations.

Order of Operations

Let's take a moment and review the Order of Operations.

HOW TO SIMPLIFY WITH THE ORDER OF OPERATIONS	
Parentheses and Other Grouping Symbols	Simplify all expressions inside the parentheses or other grouping symbols, working from the inside out.
Exponents	Simplify all expressions with exponents.
Multiplication & Division	Perform all multiplication and division in order from left to right. They have equal priority.
Addition and Subtraction	Perform all addition and subtraction in order from left to right. They have equal priority.

Example

$70 \div 10 + 4(6$ [illegible]

$5 + 23 + 3[6 - 3(4 - 2)]$

Name:____ Date: ________ Period: ______

Evaluating Expressions notes

Evaluating Expressions

In the last few examples, we simplified expressions using the order of operations. Now we'll evaluate some expressions—again following the order of operations. To **evaluate an expression** means to find the value of the expression when the variable is replaced by a given number.

To evaluate an expression, substitute that number for the variable in the expression and then simplify the expression.

Example

Evaluate $7x-4$, when
ⓐ $x =$ [illegible] ⓑ $x = 1$

Evaluate the following for $x = 4$, when
ⓐ x^2 ⓑ 3^x

Evaluate $2x^2 + 3x + 8$ when $x = 4$

Your Turn

Evaluate the given function.	
1) $8x - 3$, when ⓐ $x = 2$ and ⓑ $x = 1$	2) [illegible]$y - 4$, when ⓐ $y = 3$ and ⓑ $y = 5$
3) $x = 6$, when ⓐ x^3 ⓑ 2^x	4) $2x^2 + 3x + 8$ when $x = 5$
5) $3x^2 +$ [illegible] $+ 1$ when $x = 3$	6) $6x^2 - 4x - 7$ when $x = 2$

Name:____ Date: _________ Period: ______

Identify and Combine Like Terms Notes

Identify Coefficients

Algebraic expressions are made up of terms. A **term** is a constant, or the product of a constant and one or more variables.

Examples of terms are 7, y, $5x^2$, $9a$, and [illegible].

The constant that multiplies the variable is called the **coefficient**.
Think of the coefficient as the number in front of the variable. The coefficient of the term $3x$ is 3. When we write x, the coefficient is 1, since $x = 1 \cdot x$.

Example

Identify the coefficient of each term:

ⓐ [illegible] ⓑ $15x^2$ ⓒ a

Identify Like Terms

Some terms share common traits. Look at the following 6 terms. Which ones seem to have traits in common?

$5x \quad 7 \quad n^2 \quad 4 \quad 3x \quad 9n^2$

The 7 and the 4 are both constant terms.
The $5x$ and the $3x$ are both terms with x.
The n^2 and the $9n^2$ are both terms with n^2.

When two terms are constants or have the same variable and exponent, we say they are **like terms**.

- 7 and 4 are like terms.
- $5x$ and $3x$ are like terms.
- n^2 and $9n^2$ are like terms.

Example

Identify the like terms:

[illegible], $7x$, 14, 23, $4y^3$, $9x$, $5x^2$

Name:____ Date: _________ Period: ______

Identify and Combine Like Terms [illegible]actice

Your Turn

Identify the coefficient of each term:

ⓐ $17x$ ⓑ $41b^2$ ⓒ z	[illegible] $9p$ ⓑ $13a^3$ ⓒ y^3

Ide[illegible] the [illegible]ike te[illegible]s:

9, 2[illegible], [illegible], [illegible]x^3, 15, [illegible]y, $11y^2$.	$4x^3$, $8x^2$, 19, $3x^2$, 24, $6x^3$

Identify the terms in the expression:

$4x^2 + 5x + 17$	$5x + 2y$

Simplify the expression:

$3x^2 + 7x + 9 + 7x^2 + 9x +$ [illegible]	$4y^2 + 5y + 2 + 8y^2 + 4y + 5$

Name:____ Date: ________ Period: ______

Translate to an Algebraic Expression Practice

Your Turn

Translate each English phrase into an algebraic expression.	
The difference of $24x^2$ and 15	The sum of $17y^2$ and 20
The quotient of [illegible]x and 9	The product of 9 and b
Eleven more than x	Sixteen less than 14y
Four times the sum of a and b	The sum of four times [illegible]
The length of a rectangle is 9 less than the width. Let w represent the width of the rectangle. Write an expression for the length of the rectangle.	Laura has dimes and quarters in her purse. The number of dimes is two more than twelve times the number of quarters. Let q represent the number of quarters. Write an expression for the number of dimes.

Name:____ Date: _________ Period: ______

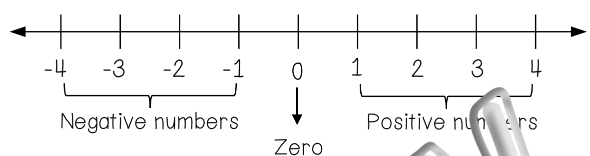
Intro to Integers *notes*

Vocabulary		
Term	**Definition**	**Example**
Negative Numbers	Numbers less than 0	-1, -2, -3, -4, ...
Positive Numbers	Numbers greater than zero.	0, 1, 2, 3, 4, 5...
Opposites	The number that is the same distance from zero on a number line, but on the opposite side.	5 and -5 3 and -3 -7 and 7

Negative Numbers

Negative numbers are numbers less than zero. Some real-world examples of negatives are:

- Temperature below zero
- Elevation below sea level
- Overdrawn checking account



Zero is neither positive or negative.
You can order negatives just like you can order positives!

Example

Order each of the following pairs of numbers using < or >

14 ___ 6   -1 ___9   1 ___-4   2 ___-20

Your Turn

Order each of the following pairs of numbers using < or > :

8 ___ 3   -2 ___ 5   -5 ___-2   9 ___-21

 Name:____ Date: ________ Period: ______

Vocabulary		
Term	**Definition**	**Example**
Negative Numbers	Numbers less than 0	-1, -2, -3, -4, …
Positive Numbers	Numbers greater than zero.	0, 1, 2, 3, 4, 5…
Opposite	The number that is the same distance from zero on a number line, but on the opposite side.	5 and -5 3 and -3 -7 and 7

Opposites

Sometimes in algebra the same symbol has different meanings. Just like some words in English the specific meaning becomes clear by looking at how it is used. Let's look at how we can use the symbol "-" :

- Between two numbers to show subtraction like 10 – 4
- In front of a number to show a negative number like -8
- In front of a variable to show the opposite, like –x ("the opposite of x")
- When you have two, like - (-5) you read it as "the opposite of -5"

All that to say, -a means "the opposite of a"

Example

Find the opposite of each number:

8	-12	-(-7)	-x

Your Turn

Find the opposite of each number:

5	–(-1)	-60	-z

Name:______________________________ Date: ________ Period: ______

Integers

The whole numbers and their opposites create integers!
The integers are the numbers …-3, -2, -1, 0, 1, 2, 3, 4 …

Be careful though, when evaluating the opposite of a variable, watch your negatives closely!

Example

Evaluate $-x$ when $x = 4$	Evaluate $-x$ when $x = -4$

Your Turn

Evaluate given the function.

$-n$, when $n = 5$	$-m$, when $m = -11$
$-n$, when $n = -5$	$-m$, when $m = 11$

Name:____ Date: _________ Period: ______

Absolute Value notes

Vocabulary		
Term	**Definition**	**Example**
Absolute Value	A number's distance from 0 on the number line. Written as |n|	| 5 | = 5 | -5 | = 5
Property of Absolute Value	|n| ≥ 0 for all numbers Absolute values are always positive!	
Grouping Symbols	Absolute value can be added to our list of grouping symbols.	Parentheses ( ) Brackets [ ] Braces { } Absolute Value | |

Absolute Value

Absolute value is a number's distance from zero, and since distance is always positive, absolute value is always positive!

When simplifying expressions with absolute value, treat the absolute value as a grouping symbol and follow the order of operations just like usual.

Example

Simplify:			
| 3 |	|-44 |	[illegible]	
Fill in <, >, or = for each of the following pairs of numbers:			
|-5| __ -|-5|	8 ___ -|-8|	[illegible] ___ [illegible]	-(-16) ___ -|-16|
Simplify:		Evaluate:	
24 - |19 – [illegible]|		| -y | when y = -39	
		-| p | when p = -11	

Name:_______________________________________ Date: _________ Period: ______

Absolute Value Practice

Simplify:

1) |4|	2) |-34|	3) [illegible]	4) |-45|

Fill in <, >, or = for each of the following [illegible]airs [illegible]umbers.

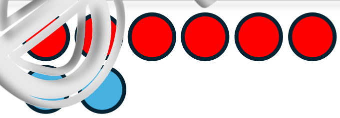
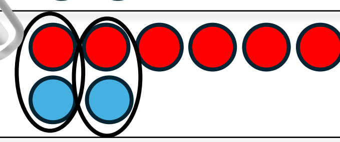
5) |-8| ___ -|-8|	6) |3[illegible] ___ [illegible]3|	7) -(-15) ___ -|-15|

Simp[illegible]

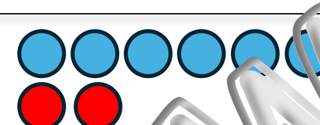
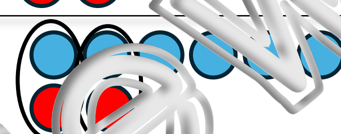
8) 1[illegible] |1[illegible] 4 (2 – 1)|	9) 11 + | 8 – 4(7 – 5)|

Evaluate:

10) |x| when x = −21	12) -|z| w[illegible]en z = 54
11) |-y| wh[illegible] = -4[illegible]	13) -|r| when r = -32

Modeling Adding Integers: -6 + 2	
Step	**Model**
Start with 6 negatives	
Add 2 positives	
Remove any neutral pairs.	
We have 4 negatives left.	
The sum of -6 and 2 is -4.	-6 + 2 = -4

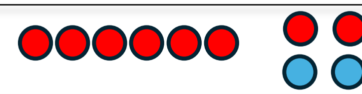
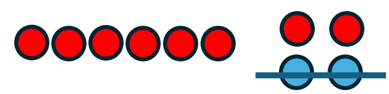
Notice that there were more negatives than positives, so our answer was negative.

Modeling Adding Integers: 6 + (-2)	
Step	**Model**
Start with 6 positives	
Add 2 negatives	
Remove any neutral pairs.	
We have 4 positives left.	
The sum of 6 and -2 is 4.	6 + (-2) = 4

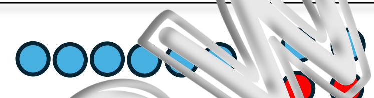
Notice that this time we had more positives than negatives, so our answer was positive. When adding negatives with different signs, subtract the numbers, then you can imagine the counters to help you decide whether your answer is positive or negative. If the larger number is positive, your answer is positive. If the larger number is negative, your answer is negative.

EXAMPLES: -1[illegible] + 4 = 18 + (-49) = 29 + (-19) =

What if we need to subtract a negative and a positive number? We'll need to add neutral pairs so that we have positive numbers to take away. A neutral pair doesn't change the value, because they cancel each other out. In the next example, we will add two neutral pairs so we can subtract a positive two.

Modeling Subtracting Integers: -6 - 2	
Step	**Model**
Start with 6 negatives	
Add the neutrals needed to get 2 positives (this doesn't change our value!)	
Now we can take away 2 positives. The difference of -6 and -2 is 8.	

Now try 6 – (-2). We start with 6 positives. We need to take away 2 negatives, but we don't have any negatives to take away, so we add neutral pairs till we have those two negatives to take away.

Modeling Subtracting Integers: 6 – (-2)	
Step	**Model**
Start with 6 positives	
Add the neutrals needed to get 2 negatives. (this doesn't change our value!)	
Now we can take away 2 negatives. The difference of 6 and -2 is 8.	

Did you notice that subtraction of signed numbers can be done by adding the opposite?
-3 – 1 is the same as -3 + (-1) and 3 – (-1) is the same as 3 + 1.
This is the subtraction property: $a - b = a + (-b)$ and $a - (-b) = a + b$

EXAMPLES:

12 – 7   12 + (-7)   -16 – 8   -16 + (-8)

7 – (-13)   7 + 13   - 8 – (-5)   - 8 + 5

Name:____ Date: ________ Period: ______

Subtract Integers *Practice*

Simplify:

1) 4 - 3

2) [illegible]

3) 8 – 4

4) 8 – (-4)

5) -6 – 4

6) 6 – (-4)

7) -8 – [illegible]

8) 8 – (-4)

9) -32 + (-21)

10) 16 + (-31)

11) -3 + 4(-5 + 6)

12) -3 + 3(-4 + 4)

13) -11 – 7

14) -14 [illegible] 8

15) 6 – (-13)

16) -4 – (-7)

17) 8 – (-3 – 2) – [illegible]

18) 12 – (-9 – 5) – 14

Name:____ Date: __________ Period: _______

Evaluate Variables Expressions with Integers Practice

Evaluate:

1) $n + 2$ when $n = -8$

2) $-n + 2$ when $n = -8$

3) $y + 8$ when $y = -9$

4) $-y + 8$ when $y = -9$

5) $(x - y)^2$ when $x = -8$ and $y = 29$

6) $(x + y)^3$ when $x = -8$ and $y = 10$

7) $17 - k$ when $k = 19$

8) $17 - k$ when $k = -19$

9) $-5 - b$ when $b = 14$

10) $-5 - b$ when $b = -14$

11) $3x^2 - 2x + 6$ when $x = -3$

12) $4x^2 - x - 5$ when $x = -2$

Name:__________________________ Date: ________ Period: ______

Unit 1.4: Multiply and Divide Integers Practice

Simplify.	
1. $-4 \cdot 9$	2. [illegible](-5)
3. $-52 \div (-4)$	4. $-140 \div 20$
5. $5(-6) + 8(-2) - 4$	6. $(-2)^2$
7. -3([illegible])	8. $65 \div (-5) + (-21) \div (-7)$
9. $(-4)^2 - 24 \div (8 - 2)$	10. $9 - 2[3 - 7(-2)]$
Evaluate.	
11. $y + (-15)$ when $y = -33$	12. $y + (-15)$ when $y = 40$
13. $-2x + 17$ when $x = -9$	14. $-2x + 17$ when $x = 9$
15. $2w^2$ [illegible] $+ 7$ when $w =$ [illegible]3	16. $9a - 2b - 6$ when $a = -6$ and $b = -3$

Name:____ Date: _________ Period: ______

Unit 1.4: Multiply and Divide Integers Practice

Translate to an algebraic expression and simplify if possible.

17. The sum of 4 and -15, increased by 7	18. The difference of -5 and -31
19. The product of -2 and [illegible]	20. The quotient of -40 and -10
21. The quotient of -6 and the sum of x and [illegible]	22. The product of -10 and the difference of a and b

Solve.

23. In your own words, state the rules for multiplying integers.

24. Why is $-3^4 \neq (-3)^4$?

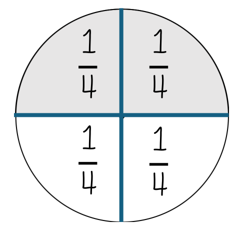
Name:____ Date: _________ Period: ______

Find Equivalent Fractions Notes

Fractions

Fractions are a way to represent parts of a whole. The fraction 1/4 means that one whole will be divided into 4 equal parts and each part is one of the four equal parts. The fraction 2/4 represents two of the four equal parts. In fractions, the top number is called the numerator, and the bottom number is called the denominator.

If a whole pizza is cut into 4 pieces, and we eat all 4 pieces, we ate 4/4 pieces, or one whole pizza. That means that 4/4 = 1, which brings us to the **Property of One: Any number divided by itself is one.**



Equivalent Fractions

If any number divided by itself equals 1, then that means that 4/4 and 5/5 both equal one. We call them equivalent fractions, because equivalent fractions have the same value.

Some other examples of equivalent fractions are 1/2 and 2/4. Let's look at how we can make equivalent fractions using multiplication:

$$\frac{1 \cdot 2}{2 \cdot 2} = \frac{2}{4} \text{ so } \frac{1}{2} = \frac{2}{4}$$

$$\frac{1 \cdot 3}{2 \cdot 3} = \frac{3}{6} \text{ so } \frac{1}{2} = \frac{3}{6}$$

Example

Find three fractions equivalent to:	
3/5	4/[illegible]
Your Turn!	
5/6	4/11

Name:____ Date: _________ Period: ______

Simplify Expressions with a Fraction Bar *notes*

Expressions with a Fraction Bar

The line that separates the numerator from the denominator in a fraction is called a fraction bar. We treat a fraction bar as a grouping symbol. The order of operations then tells us to simplify the numerator and then the denominator. Then we divide.

To simplify the expression $\frac{6-3}{8+1}$, simplify the numerator first, then simplify the denominator, then divide the resulting expression.

$$\frac{6-3}{-8+2} = \frac{3}{-6} = -\frac{1}{2}$$

Note: It doesn't matter where the negative goes in a fraction.

Example

Simplify:	
$\frac{4-2(3)}{2^2+4}$	$\frac{4(-3)+6(-2)}{-3(2)-4}$
Your Turn!	
$\frac{6-4(5)}{3^2-2}$	$\frac{4-4(6)}{3^2\ \text{[illegible]}\ 6}$
$\frac{8(-2)+4(-3)}{5(2)+3}$	$\frac{7(-1)+9(-3)}{-6(3)-2}$

Name:____ Date: _________ Period: ______

Add & Subtract Fractions: Common Denominator *notes*

Add & Subtract Fractions with a Common Denominator

When we multiplied fractions, we just multiplied straight across. To add or subtract fractions, they must have a common denominator (the denominators must be the same).

If a, b, and c are numbers where $c \neq 0$, then

$$\frac{a}{c}+\frac{b}{c}=\frac{a+b}{c} \text{ and } \frac{a}{c}-\frac{b}{c}=\frac{a-b}{c}$$

To add or subtract fractions, add or subtract the numerators and place the result over the common denominator.

Example

Simplify.	
$\frac{x}{3}+\frac{1}{3}$	$-\frac{23}{24}-\frac{12}{24}$
$-\frac{10}{x}-\frac{5}{x}$	$\frac{3}{8}+\left(-\frac{5}{8}\right)-\frac{2}{8}$
Your Turn!	
$\frac{x}{7}+\frac{3}{7}$	$\frac{y}{9}$ [illegible] $\frac{4}{9}$
$-\frac{27}{32}-\frac{1}{32}$	[illegible] $-$ [illegible]/25
$-\frac{10}{z}-\frac{7}{z}$	$-\frac{17}{b}-\frac{5}{b}$
$-\frac{2}{10}+\left(-\right.$[illegible]$\left.\right)$ [illegible]/10	$\frac{5}{9}+\left(-\frac{4}{9}\right)-\frac{8}{9}$

Name:____ Date: _________ Period: ______

Add & Subtract Fractions: Different Denominator *notes*

Add & Subtract Fractions with Different Denominators

As we have seen, to add or subtract fractions, their denominators must be the same.
The **least common denominator** (LCD) of two fractions is the smallest number that can be used as a common denominator of the fractions. The LCD of the two fractions is the least common multiple (LCM) of their denominators.
After we find the LCD of two fractions, we convert the fractions to equivalent fractions with the LCD. Putting these steps together allows us to add and subtract fractions because their denominators will be the same.

Example

Simplify	
$\frac{7}{12} + \frac{5}{18}$	$\frac{7}{15} - \frac{17}{24}$
$\frac{3}{5} + \frac{y}{8}$	

Your Turn!	
$\frac{5}{12} + \frac{11}{15}$	$\frac{13}{15} + \frac{19}{20}$
$-\frac{13}{24} - \frac{15}{32}$	$\frac{21}{[illegible]} - \frac{9}{28}$
$\frac{x}{6} + \frac{8}{9}$	$-\frac{b}{6} + \frac{7}{15}$

Name:____ Date: _________ Period: ______

Name and Write Decimals notes

Name and Write Decimals

Decimals are another way of writing fractions whose denominators are powers of 10.

0.1 = 1/10 "0.1 is one tenth"
0.01 = 1/100 "0.01 is one hundredth"
0.001 = 1/1000 "0.001 is "one thousandth"

Notice that "thousand" is a number larger than one, but "one thousandth" is a number smaller than one. The "th" at the end of the name tells you that it is a fraction and/or decimal.

When we name a whole number, the name corresponds to the place value based on the powers of ten. We read 10,000 as "ten thousand" and 10,000,000 as "ten million." Likewise, the names of the decimal places correspond to their fraction values.

Place Value											
Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths	Ten thousandths	Hundred thousandths
						.					

Example

Name the decimal.	
4.3	15.571
Write as a decimal.	
Fourteen and twenty-four thousandths	

Name:____ Date: _________ Period: ______

Name and Write Decimals Practice

Name and Write Decimals

Place Value												
Hundred thousands	Ten thousands	Thousands	Hundreds	Tens	Ones		Tenths	Hundredths	Thousandths	Ten thousandths	Hundred Thousandths
						.					

Your Turn

Name the decimal.	
6.8	5.9
-13.461	-2.053
Write as a decimal.	
Fifteen and sixty-eight thousandths	
Five and ninety-four thousandths	

Name:____ Date: _________ Period: ______

Unit 1.7: Decimals Practice

Add or subtract.

15. 16.92 + 7.55	16. [illegible] – 92.[illegible]
17. -38.69 + 31.47	18. 91.95 - (-10.462)

Multiply or divide.

19. (0.24)(0.7)	20. (55.2)(1000)
21. 4.75 ÷ 25	22. 0.6 ÷ [illegible].2
23. 5.2 ÷ 2.5	24. 14 ÷ 0.35

Name:____ Date: ________ Period: ______

Unit 1.7: Decimals *Practice*

Write each decimal as fraction and each fraction as a decimal.

25. 0.04

26. [illegible]

27. 0.375

28. 17/20

29. 15/11

30. 2.4 + 5/8

Convert each percent to a decimal and each decimal to a percent.

31. 1%

32. 21.63%

Name:____ Date: _________ Period: ______

Simplify Expressions with Square Roots *notes*

Squares

Remember that when a number "n" is multiplied by itself, we write n^2 and read it "n squared." The result we call the square of "n." For example, 8^2 is read "8 squared."

Complete the following table to show the squares of the counting numbers 1 through 15:

Number	n	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Square	n^2								64			121				

The second-row numbers are called perfect squares. It will be helpful to learn to recognize perfect squares, or to keep the above list handy when answering questions.

The squares of the counting numbers are always positive numbers. The squares of negative numbers are always positive as well, since a negative times a negative equals a positive.

$$(-4)^2 = 64 \qquad 4^2 = 64$$

Sometimes we need to look at the relationship between numbers and their squares in reverse. Because $9^2 = 81$, we say that 81 is the square of 9. We also can say that 9 is the **square root** of 81. A number whose square is "m" is called a square root of "m."

Notice that $(-9)^2 = 81$, so -9 is also a square root of 81. Therefore, both 9 and -9 are square roots of 81.

That means that every positive number has two square roots – one positive and one negative. The positive root is called the principal root.

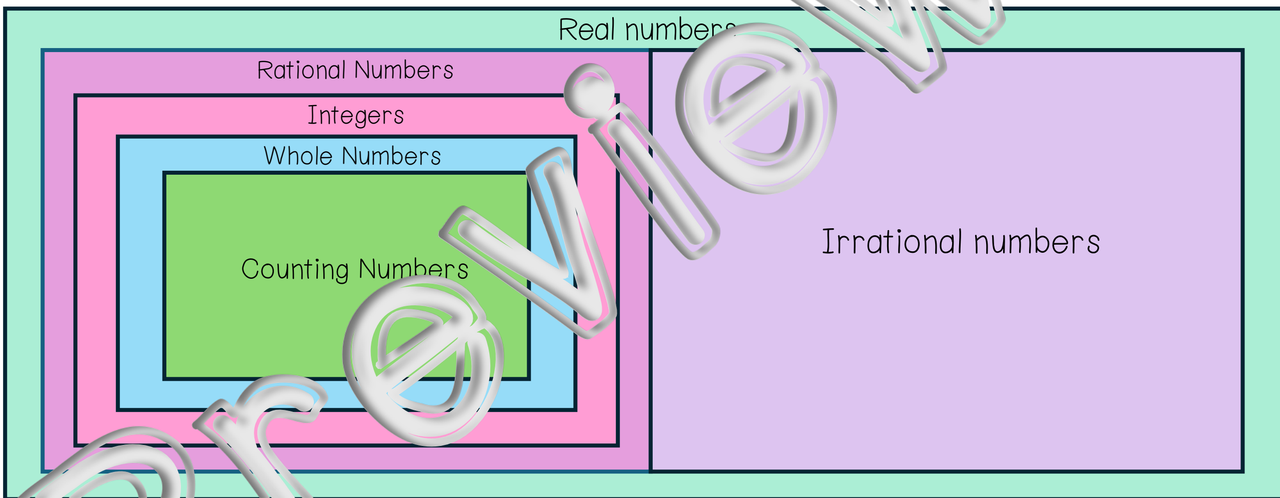
The radical sign, $\sqrt{m}$ means we want the positive root. The number under the radical sign is called the radicand.

Example

Simplify.			
$\sqrt{25}$	$\sqrt{121}$	$-\sqrt{9}$	$-\sqrt{144}$
Your Turn			
$\sqrt{36}$	$\sqrt{196}$	$-\sqrt{81}$	$-\sqrt{225}$

Name:____ Date: __________ Period: _______

Identify Integers, Rational & Irrational and Real Numbers *Practice*



Your Turn

Write as the ratio of two integers:

-25	3.88	-19	8.41

Given the following numbers, list the rational and irrational numbers.

$0.28,\ 0.81\overline{6},\ 2.38927892384\ldots,\ 0.125$

Rational: ____

Irrational: ____

For each number given, identify whether it is rational or irrational.

$\sqrt{121}$	$\sqrt{18}$	[illegible]

For each number given, identify whether it is a real number or not a real number.

$\sqrt{-35}$	[illegible]	$\sqrt{-16}$

Given the following numbers, list the whole numbers, integers, rational numbers, irrational numbers, and real numbers (you may have one number in more than one category).

$-3,\ -\sqrt{2},\ 0.\overline{4},\ 0.125,\ \frac{9}{6}, \sqrt{121}$

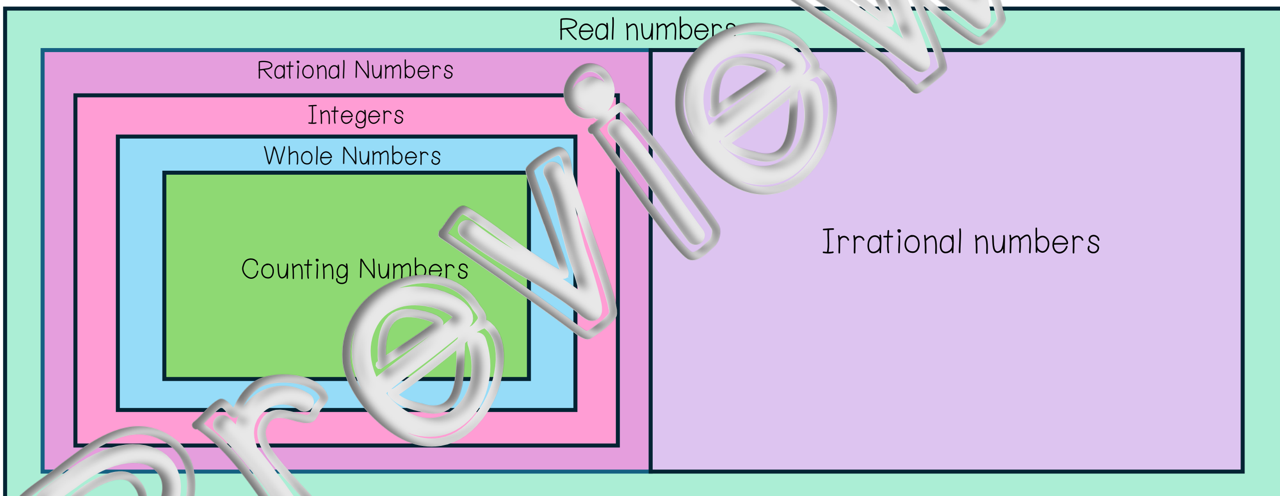
Whole Number: __________________________ Irrational Number: __________________________

Rational Number: ________________________ Integers: ________________________________

Real Numbers: ____

Name:______________________________________ Date: _________ Period: ______

Identify Integers, Rational & Irrational and Real Numbers *Practice*



Your Turn

Write as the ratio of two integers:			
-25	3.88	-19	8.41

Given the following numbers, list the rational and irrational numbers.

$0.28,\ 0.81\overline{6},\ 2.38927892384\ldots,\ 0.125$

Rational: ____

Irrational: ____

For each number given, identify whether it is rational or irrational.		
$\sqrt{121}$	$\sqrt{18}$	$\sqrt{11}$

For each number given, identify whether it is a real number or not a real number.		
$\sqrt{-35}$	$-\sqrt{}$[illegible]	$\sqrt{-16}$

Given the following numbers, list the whole numbers, integers, rational numbers, irrational numbers, and real numbers (you may have one number in more than one category).

$-3,\ -\sqrt{2},\ 0.\overline{4},\ 0.125,\ \frac{9}{6},\sqrt{121}$

Whole Numbers: ____________________ Irrational Number: ____________________

Rational Numbers: ____________________ Integers: ____________________

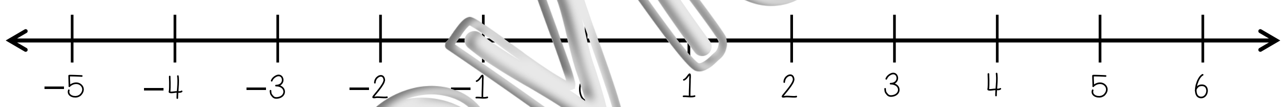
Real Numbers: ____

Name:____ Date: _________ Period: ______

Locate Fractions on the Number Line *notes*

Locating Fractions

Just like you can put positive and negative numbers on a number line, you can put fractions on a number line as well. Let's locate 1/5, -4/5, 3, -4, and 7/4 on a number line.



You can use a number line to help you answer inequality problems.

Which is greater: 1/5 or -4/5? What about 3 or 7/4?

Using a number line can help answer those questions.

Example

Order the following pairs of numbers using < or >.			
-2/3 ______ -1	$-3\frac{1}{2}$ ______ -3	-3/5 ______ -1/5	-2 ______ -8/3
Your Turn!			
$-1\frac{1}{2}$ ______ -2	-1/3 ______ -1	-2[illegible] ______ [illegible]1/[illegible]	-3 ______ -7/3
-1 ______ -1/2	[illegible] ______ [illegible]	-3/5 ______ -4/5	-4 ______ -10/3

Name:____ Date: _________ Period: ______

Locate Decimals on the Number Line *notes*

Locating Decimals

Since decimals are another way of writing fractions, locating decimals on the number is similar to locating fractions on the number. Let's locate [illegible], -1.6, and -0.7 on the number line.

You can use a number line to help you answer inequality problems for decimals also.

Which is greater 0.31 or 0.3[illegible]

To help you figure out you can give each decimal the same number of decimal places or convert them to fractions. 0.31 = 0.310 because I can add as many zeros as I want onto the end of a decimal without changing the value. It/s like taking the fraction 31/100 and turning it into the equivalent fraction 310/1000.

That being said, since $\frac{310}{1000}$ is more than $\frac{308}{1000}$, 0.31 > 0.308.

Example

Order the following pairs of numbers using < or >.		
0.64 ___ 0.6	0.83 ___0.803	-[illegible] ___ [illegible]

Your Turn!	
0.43 ___ 0.4	0.1[illegible] ___ [illegible]
0.77 ___ 0.707	[illegible] ___0.35
-0.4 ___ -[illegible]	-0.6 ___ -0.7

Name:____ Date: ________ Period: ______

Unit 1.9: Properties of Real Numbers Practice

Use the associative property to simplify.

1. $3(4x)$

2. [illegible] 12) + [illegible]

Simplify.

3. $\frac{1}{2} + \frac{7}{8} + \left(-\frac{1}{2}\right)$

4. $\frac{3}{20} \cdot \frac{49}{11} \cdot \frac{20}{3}$

5. $[2.48(12)](0.5)$

6. $12\left(\frac{5}{6}p\right)$

7. $43m + ($[illegible]$12n) + (-14m) + (-9n)$

8. $\frac{3}{8}g + \frac{1}{12}h + \frac{7}{8}g + \frac{5}{12}h$

9. $6.8c + 9.41b + (-4.37c) + (-0.88b)$

Find the additive inverse of each number.

10. $\frac{2}{5}$

11. 4.3

12. [illegible]

13. $-\frac{12}{5}$

Find the multiplicative inverse of each number.

14. 6

15. [illegible] π

16. 0.9

Simplify.

17. $\frac{0}{5}$

18. $\frac{[illegible]}{0}$

19. $19c + 44 - 19c$

20. $10(0.1f)$

21. $15 \cdot \frac{3}{5}(4x + 10)$

Name:____ Date: _________ Period: ______

Identity Property of Multiplication

To decide how to write the fraction you use to convert un[illegible] yo[illegible] [illegible]o choose the fraction that will make the units we want to convert fr[illegible] divi[illegible] [illegible] of [illegible] expression. Let's look at an example. Say you want to convert [illegible] to [illegible]:

$$48 \text{ inches} \cdot \frac{1 \text{ [illegible]}}{12 \text{ inches}}$$

We use this form because the in[illegible] wil[illegible] cancel o[illegible] and leave you with feet, which is our goal unit.

Example

Lily [illegible] inches [illegible]. Convert that height to f[illegible].	Ellie, an elephant in the zoo, weights almost 3.2 tons. Convert her weight to pounds.
Julie is going with her family to their summer home. She will be away from her friends for 9 weeks. Convert that time to minutes.	How many ounces are in 1 gallon?
Your Turn!	
Leslie is 30 inches tall. Convert her height to feet.	Ril[illegible] bough[illegible] [illegible] that is 18 yards long. Conve[illegible] the [illegible]gth to feet.
Archie's car weighs abo[illegible] tons. [illegible] is that in pounds?	The distance between the earth and the moon is about 250,000 miles. How many yards is that?

Name:______________________________________ Date: ________ Period: ______

Algebra I Unit I Review

Classify each number as rational, irrational, whole, natural, [illegible] integer

97. -4, 0, $\sqrt{16}$, 5.432…, 13/3, 10.5

Order each of the following pairs of numbers using <, >, or =:

98. [illegible] ____ [illegible] -1/8

99. -7/9 ___ -4/9

100. 0.9 ___ 0.61

101. -0.27 ____ -0.3

102. 0.7 _____ -3/4

103. 0.8 ____ 0.43

Simplify.

104. $\left(\frac{7}{12}+\frac{4}{5}\right)+\frac{1}{5}$

105. 11x + 8y + 16x + 15y

106. -18 · 15 · (2/9)

Find the additive inverse:

107. 1/4

108. -14

Name:____________________________________ Date: ________ Period: ______

Algebra I Unit I Review

Find the multiplicative inverse:

109. -10

110. 4/9

111. 2.1

112. 0.9

Simplify.

113. 7(c + 8)

114. -8(-6w – 13)

115. (y – 4) – (6a + 9)

116. 4(x – 3) – 8(x – 7)

Convert the measurements.

117. 5 ft. 4 inches = __________ in.

118. 14,1[illegible] = __________ miles

119. 1.7 m = __________ [illegible]

120. 13g = __________ mg

1 Name:____Date:______________Period:________

Algebra Chapter One Practice Test

Directions: Show all work. Circle your final answer.

1. Write as a whole number using digits: three hundred five thousand, six hundred sixteen

2. Find the prime factorization of 504

3. Find the LCM of 18 and 24

4. Combine the like terms:

$$5n + 8 + 3n - 2$$

5. Evaluate:

$$-|x| \text{ when } x = -2$$

6. Evaluate:

$$11 - b \text{ when } b = -4$$

7. Translate to an algebraic expression and simplify: thirty less than negative eight

8. Molly has a balance of -\$19 in her checking account. She deposits \$153 to the account. What is the new balance?

 Name:____Date:____________Period:_______

Directions: Show all work. Circle your final answer.

9. Round 687.134 to the nearest hundredth.

10. Convert [illegible] to [illegible] decimal.

11. Convert 1.87 to a per[illegible]

A. 1.87%
B. 1[illegible]
C. 1[illegible]%
D. 187[illegible]

12. Simplify:

$$5 + 10(3 + 9) - 5^2$$

13. Simplify:

$$-86 + 43$$

14. Simplify:

$$-19 - 26$$

15. Simplify:

$$(-2)^4$$

16. Simplify:

$$-4(-9) \div 15$$

 Name:____Date:_____________Period:________

Directions: Show all work. Circle your final answer.

26. Simplify:

$$-14\left(\frac{5}{21}x\right)$$

27. Simplify:

$$([illegible]) - 8$$

28. Simplify:

$$6w + (-4x) + 9w + 8x$$

29. Simplify:

$$\frac{0}{55}$$

30. Simplify:

$$\frac{78}{0}$$

31. Simplify:

$$-3(13x - 5)$$

32. $1\frac{2}{3}$ hours = _________ minutes

33. 2.8 miles = _________ kilometers.

34. Max's car is 5 feet 11 inches tall. He wants to put a rooftop cargo bag on the car. The cargo bag is 1 foot 6 inches tall. What will be the total height of the car with the cargo bag on the roof?

1 Name:____Date:______________Period:________

Algebra Unit One **Test**

Directions: Show all work. Circle your final answer.

1. Write as a whole number using digits: five hundred four thousand, twelve	2. Find the prime factorization of 614
3. Find the LCM of 35 and 75	4. Combine the like terms: $9n + 7 + 4n - 3$
5. Evaluate: $-\lvert w \rvert$ when $w = -5$	6. Evaluate: $15 - c$ when $c = -5$
7. Translate to an algebraic expression and simplify: fifty-two less than negative fifteen.	8. Max has a balance of -$18 in his checking account. He deposits $134 to the account. What is the new balance?

 Directions: Show all work. Circle your final answer.

26. Simplify: $-58\left(\frac{7}{29}x\right)$	27. Simplify: $(p + 11) - 9$
28. Simplify: $8n + (-9h) + 7n + 9h$	29. Simplify: $\frac{0}{9}$
30. Simplify: $\frac{9}{0}$	31. Simplify: $-7(14x-3)$
32. $2\frac{1}{3}$ hours = _________ minutes	33. 3.8 miles = _________ kilometers

34. Laken's car is 4 feet 11 inches tall. He wants to put a rooftop cargo bag on the car. The cargo bag is 2 foot 4 inches tall. What will be the total height of the car with the cargo bag on the roof?

Name: Key Date: ________ Period: ______

Unit 12: Use The Language Of Algebra Practice

Evaluate the following expressions.

15. $7x + 8$ when $x = 2$
$7(2) + 8$
$14 + 8$
22

16. x^5 when $x = 2$
$(2)^5 = 32$

17. $(x$ [illegible] when $x =$ [illegible] $y = 6$
[illegible]

18. $2x + 2y$ when $x = 18$ and $y = 14$
$2(18) + 2(14)$
$36 + 28$
64

Identify the coefficient of each term.

19. $8a$
8

20. $5r^5$
5

21. xy
1

Identify the like terms.

22. [illegible] 4, 8y, 5, $8x^3$
$x^3, 8x^3$ 4, 5
$8x$ $8y$

23. $9a, a^2, 16, 16b^2, 4, 9b^2$
$9a$
a^2
$16, 4$
$16b^2, 9b^2$

Identify the terms in each expression.

24. $14x^2 + 7x + 3$
$14x^2, 7x, 3$

25. $9y^3 + 7y + 5$
$9y^3, 7y, 5$

Simplify the following expressions by combining like terms.

26. $10x + 4x$
$14x$

27. [illegible]
$10d +$ [illegible]

28. $10a + 9 +$ [illegible] $7a$ [illegible]
$22a$ [illegible]

29. $3x^2 + 12x + 11 + 14x^2 + 7x + 6$
$17x^2 + 19x + 17$

Name: Key Date: ________ Period: ______

Add & Subtract Fractions: Common Denominator notes

Add & Subtract Fractions with a Common Denominator

When we multiplied fractions, we just multiplied straight across. To add or subtract fractions, they must have a common denominator (the denominators must be the same).

If a, b, and c are numbers where $c \neq 0$, then

$$\frac{a}{c}+\frac{b}{c}=\frac{a+b}{c} \text{ and } \frac{a}{c}-\frac{b}{c}=\frac{a-b}{c}$$

To add or subtract fractions, add or subtract the numerators and place the result over the common denominator.

Examples

Simplify.	
$\frac{x}{3}+\frac{1}{3}$ = $\frac{x+1}{3}$	$-\frac{23}{24}-\frac{12}{24}$ = $\frac{-35}{24}$
$-\frac{10}{x}-\frac{5}{x}$ $\frac{-15}{x}$	$\frac{3}{8}+\left(-\frac{5}{8}\right)-\frac{2}{8}$ = $\frac{-2}{8}-\frac{2}{8}$ = $\frac{-4}{8}$ = $\frac{-1}{2}$
Your Turn!	
$\frac{x}{7}+\frac{3}{7}$ = $\frac{x+3}{7}$	$\frac{y}{9}-\frac{4}{9}$
$-\frac{27}{32}-\frac{1}{32}$ $\frac{-28}{32}$ = $\frac{-7}{8}$	$-\frac{19}{25}-\frac{[illegible]}{25}$ = $\frac{-26}{25}$
$-\frac{10}{z}-\frac{7}{z}$ = $\frac{-17}{z}$	$-\frac{17}{b}-\frac{5}{b}$ = $\frac{-22}{b}$
$-\frac{2}{10}+\left(-\frac{[illegible]}{10}\right)-\frac{7}{10}$ $\frac{-6}{10}-\frac{7}{10}$ = $\frac{-13}{10}$	$\frac{5}{9}+\left(-\frac{4}{9}\right)-\frac{8}{9}$ $\frac{1}{9}-\frac{8}{9}$ = $\frac{-7}{9}$

Name: Key Date: ________ Period: ______

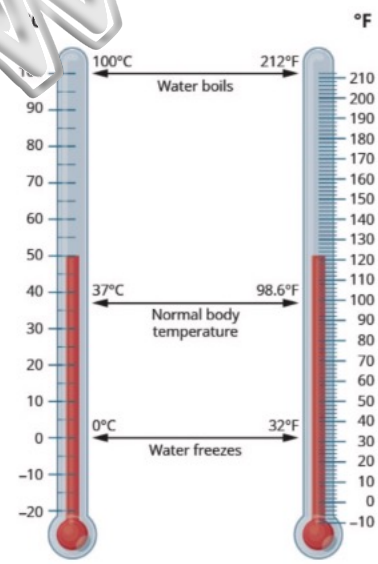
Convert Between Fahrenheit & Celsius Temperatures notes

Fahrenheit to Celsius

Have you ever been to a foreign country and heard the weather forecast? If the forecast is for 22°C, what does that mean?

The U.S. and metric systems use different scales to measure temperature. The U.S. system uses degrees Fahrenheit, written °F, while the metric system uses degrees Celsius, or °C.

The image to the right shows the relationship between the two systems.



To convert from Fahrenheit to Celsius, use this formula:

$$C = \frac{5}{9}(F - 32)$$

To convert from Celsius to Fahrenheit, use this formula:

$$F = \frac{9}{5}C + 32$$

Example

Convert 50°F to degrees Celsius	Convert 20°C to degrees Fahrenheit.
$C = \frac{5}{9}(50-32)$ $= \frac{5}{9}(18) = 10°C$	$F = \frac{9}{5}(20) + 32$ $F = 36 + 32 = 68°F$
Your Turn!	
Convert 59°F to degrees Celsius $C = \frac{5}{9}(59-32)$ $= \frac{5}{9}(27) = 15°C$	Convert 42°F to degrees Celsius $C = \frac{5}{9}(42-32)$ $= \frac{5}{9}(10) = \frac{50}{9} \approx 5.6°C$
Convert 25°C to degrees Fahrenheit. $F = \frac{9}{5}(25) + 32$ $= 45 + 32 = 77°F$	Convert 10°C to degrees Fahrenheit. $F = \frac{9}{5}(10) + 32$ $= 18 + 32 = 50°F$

9

Name: Key Date: _________ Period: ______

Unit 1.10: Systems of Measurement Practice

Convert the units.	
1. 6 ft = 36 in. 6 x 12	2. 18 in = ___ ft.
3. 160 ft. = 53.3 yds. 160 ft · 1 yd / 3 ft	4. 1.5 miles = 7,920 ft. 1.5 mi · 5280 ft / 1 mi = 7920
5. 4.6 tons = 9,200 lbs. 4.6 x 2000	6. 35,000 lbs. = 17.5 tons 35,000 · 1 tons / 2000 lbs
7. How many teaspoons are in a pint? 1 pt · 2 cups / 1 pt · 8 oz / 1 cups · 2 tbsp / 1 oz · 3 tsp / 1 tbsp = 96	8. 14 lbs. = 224 oz. 14 lbs. · 16 oz / 1 lbs
9. 6 feet 4 in. = 76 in. 6x12 = 72 in + 4 in	10. 7 lbs. 4 oz. = 116 oz. 7x16 = 112 oz + 4 oz
11. Eli caught three fish. They weighed 2 lbs. 4 oz., 1 lb. 11 oz., and 4 lbs. 14 oz. What was the total weight of the three fish? 2 lbs 4 oz 1 lb 11 oz 4 lbs 14 oz 7 lbs 29 oz → 7 lbs + 1 lb 13 oz 8 lbs 13 oz	
12. 6 ft. 7 in. + 3 ft. 8 in. = 10 ft 3 in 9 ft. 15 in 9 ft + 1 ft 3 in	
13. Lily wants to make 8 placemats. For each placemat she needs 18 inches of fabric. How many yards of fabric will she need for the 8 placemats? 18 x 8 = 144 in 144 in · 1 yd / 36 in = 4 yds	