Order of Operations

Warm-up continuation:

I. Using paper and pencil, work with a partner to simplify the expressions.

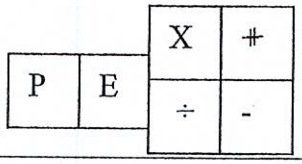
a. $4 + 3 \times 2 =$

b. $5 + 4^2 + 24 \div 6 =$

II. Using a calculator, enter the following expressions and record the answer. Compare your answers with your answers above. *If there were any differences, why?*

a. $4 + 3 \times 2 =$

b. $5 + 4^2 + 24 \div 6 =$

What is a numerical expression?	A numerical expression includes only numbers and operational symbols
What does it mean to simplify?	To simplify is to find an equivalent expression that is simpler than the original
What is the order of operations? Parentheses Exponents Multiplication Division Addition Subtraction	Order of operations is a series of steps to solve numerical expressions. PEMDAS 1. Perform operations in **grouping symbols** first 2. Find the values of the number with **exponents** 3. **Multiply or divide** from left to right as ordered in the problem. 4. **Add or subtract** from left to right as ordered in the problem.
Helpful Hint: The following chart resembles a hopscotch board. It is to remind you that when you land on multiplication/division, or addition/subtraction, both of your legs are touching a box which means that you must do whichever one comes first from left to right.	
$9 + 12 \times 2$	
$4 \times 3^2 + 8 - 16$	
$5 + 12 \div 6 - 3$	

Order of Operations

ctice 1: $4^2 + 48 \div (10 - 4)$	
ctice 2: $81 \div (9 \times 9) + 4^3$	
ctice 3: $61 + 5 \times 10 \div 2 - 70$	
ctice 4: $(2^2 + 18) + 3 - 5 \times 4$	
ctice 5: $21 \div (3 + 4) \times 9 - 2^3$	
ctice 6: gina bought 5 carved wooden beads for \$3 h and 8 glass beads for \$2 each. Write l evaluate the expression. $5 \times \$3 + 8 \times \$2$	
ctice 7: er walked 2 miles a day for the first week his exercise plan. Then he walked 3 miles the next nine days. How many miles did er walk? $2 \times 7 + 3 \times 9$	

1A

Name _____ Date _____

Order Of Operations

Solve each of the following.

1) $5 \circ 3 - 4 \div 2 \circ 3 + 10$

2) $24 \div 8 \circ 2 \div 3 + 5$

3) $18 - 6 + 4 + 6 - 2$

4) $30 - 18 \div 6 \circ 4$

5) $15 - (5 + 3) \div 2$

6) $64 \div 8 \circ 4 - 1 + 7$

7) $55 \circ 3 \div (5 + 6)$

8) $6^2 + 3 \circ 7 - 4 + 8$

9) $(6 - 4)^3 + 4 \div 2 \circ 3$

10) $(17 + 8) \div 5 + 3^2 \circ 3$

11) $9 \circ (5 + 4)^2 + 3$

12) $4^2 \div 4 \circ 3 + 10 \circ 5$

13) $80 \div 16 \circ 5 + 3^3$

14) $24 + 15 - 12 + 6$

15) $6 \circ 3^2 + (8 - 2 + 3)^2$

16) $(45 \div 9 \circ 8 \div 40)^5$

17) $18 + 5 - 4 + 9 + 3 - 4$

18) $5 + 15 \div 5 \circ 3$

Homework - Distributive Property Name: _____ E#_____

Simplify each expression:

$5(y + 8w)$	$0.2(x + 5)$	$x(x + y)$
$3(x + 1.4)$	$4(20 + 4)$	$\frac{1}{2}(8 + 2)$
$5(3c + 6)$	$\frac{3}{4}(12p + 16)$	$3(y - 8)$
$3(3 + m)$	$6(8m + 3)$	$\frac{1}{2}(14y + 10z - 2)$
$3(4h - 5t + 3)$	$5x(x - 3)$	$3(2x + 5)$

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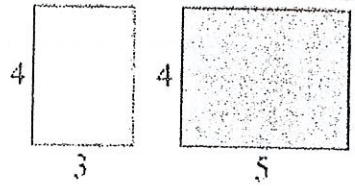
2A

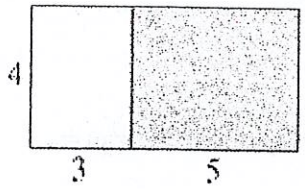
Exploring the Distributive Property

You can find the total area of two rectangles by two methods.

Method 1: Find the area of each rectangle. Then find the sum of the areas.



Method 2: Combine the two rectangles into one large rectangle. Find its length. Find its width. Then find its area.



The total area of two rectangles can be represented by the following two expressions: $3 \cdot 4 + 5 \cdot 4$ *and* $(3 + 5)4$. Since both expressions have the same value, so they are equivalent. $3 \cdot 4 + 5 \cdot 4 = (3 + 5)4$. This equation is an example of the ***Distributive Property***.

Distributive Property

To multiply a sum or difference, multiply each number within the parentheses by the number outside the parentheses.

$a(b + c) = ab + ac \quad 2(3 + 5) = 2(3) + 2(5)$

$(b + c)a = ba + ca \quad (5 + 9)2 = 5 \cdot 2 + 9 \cdot 2$

Distributive Property Practice

Simplify by distributing and collecting like terms. Show your work. The 1st one is done for you.

1. $3(4x + 6) + 7x =$
   $12x + 18 + 7x = 19x + 18$

2. $7(2 + 3x) + 8 =$

3. $9 + 5(4x + 4) =$

4. $12 + 3(x + 8) =$

5. $3(7x + 2) + 8x =$

6. $3(4x^2y^3 + 2x^2) + 4(2x^2 + 3x^2y^3) =$

11. $6m + 3(2m + 5) + 7 =$

12. $5(m + 9) - 4 + 8m =$

13. $3m + 2(5 + m) + 5m =$

14. $6m + 14 + 3(3m + 7) =$

15. $4(2m + 6) + 3(3 + 5m) =$

16. $2(1x^3y + 5x^2 + 3xy) + 3(4xy + 2x^2 + 5x^3y) =$

Simplify the expression first. Then evaluate the resulting expression for the given value of the variable.

7. $3x + 5(2x + 6) =$ _____ if $x = 4$
   $3x + 10x + 30 =$
   $13x + 30 =$
   $13(4) + 30 =$ 82

8. $4 + 6(2x + 7) =$ _____ if $x = 3$

9. $8 + 5(9 + 4x) =$ _____ if $x = 2$

17. $9(2m + 1) + 2(5m + 3) =$ _____ if $m = 2$

18. $7(7 + 5m) + 4(m + 6) =$ _____ if $m = 1$

19. $2(4m + 5) + 8(3m + 1) =$ _____ if $m = 3$

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Notes - Simplifying Algebraic Expressions Name: _____ E#_____

To add or subtract, you must have like terms. *Just like when you +/- fractions and decimals - they must be the same!*	You Try:
Example: $2z + 4z + 3z$ Example: $3s + 5r + 7s - 2r$	1) $15x + 12x - 4x$ 2) $21a + 10b - 8a + 6b$ 3) $4k^2 - 6k + 9k^2$

To multiply or divide, you DON'T need like terms	You Try:
Example: $5(2z)$ Example: $12(3a)$	1) $11(2f)$ 2) $(7b)8a$ 3) $6k(10j)$

Follow the Order of Operations	You Try:
Example: Simplify: $4(x + 2) + 5(x + 3)$ 1. Distribute: 2. Circle/Box Like Terms: 3. Combine Like Terms:	1) Simplify: $5(a + 1) + 2a$ 2) Simplify: $3(x + y) + 2(2x + y)$ 3) Simplify: $11(2c + 3d)$

Name: _____ Date: _____ E#:_____

Simplifying Algebraic Expressions

Simplify by combining like terms. (Use the distributive property when necessary)

1) $7x + 3x - 2x$	2) $9g + 6d - 4g + 2d$	3) $3c^2 + 5d + 2c^2 - 7 + d$
4) $9g + 7x^2 - 6g + 4 - x^2$	5) $4x(x + 4) + 2y - y$	6) $8x + 2x^2 + 5z + 3 - x + x^2$
4) $6a^2 + 9a + 3b^2 - 5a - b^2$	5) $5b - 3a^2 + b + 7a^2 - 3b$	6) $10x^2 + 7x + 3x^3 - 5x^2 - 4x$

13) Distribute first, then combine like terms. $7x + 3(x + 6) + 5x - 3$	14) Distribute first, then combine like terms. $2(4y + 8y^2) - 4y - 6$
Distribute:	Distribute:
Combine like terms:	Combine like terms:
Simplified Expression:	Simplified Expression:

Distribute first, then combine like terms.

1) $7c^2 + 1 + 4c - c^2 - c$	2) $5a^2 + 7a + 3b - 5a + 6$	3) $3y^2 + 2y - y^2 + 7 + 5y + 3$
4) $6(y + 3a) - 7a - 4y$	5) $4(x^2 + 3y + 1) - 2y + 4$	6) $5(b^2 + c) + 4(b+2c^2)$

Use expression vocabulary to find the parts of each expression.

1) $7y^4 + 13x + 4y - 4$ Terms: _____ Variables: _____ Coefficients: _____ Constants: _____	2) $8z + 8x - 5$ Terms: _____ Variables: _____ Coefficients: _____ Constants: _____

Factor out the GCF of the following expressions.

$10x^2 + 15 - 25x$	$16x^2 + 4y^3 - 10y$	$21z^3 + 14z - 28$

Simplify the following expressions:

1. $5d + 3d$	2. $7a - 4a + 2b - b$
3. $6x + 5y - 2x$	4. $8z + 8t - 5t + 1$
5. $n + 3n + 6m - 4m^2$	6. $5d + 7r + 18d - 4r$
7. $8f + 6 - f + 6$	8. $16r + 28s - 7s - r + 3r$
9. $8x + 5y - 6.9x$	10. $7z + 13 + 4a - 6 + z$
11. $6j^2 + 13j + 4j + 26j^2$	12. $5y^2 + 12z + 14z + 12y^2$
13. $(t + 5) + 4(t + 1)$	14. $34x^2 - 34x + 34x^2 - 1$
15. $12d + 4b - 6d - 4 + 2b$	16. $3x + 3x^2 - x + 2x$
19. $4(a + 3b) + 2b - a$	20. $\frac{1}{2}(2j + 8) + j$

4A

Evaluating Expressions Name: _____ E#: _____

Evaluate for :

a = 3 b = 5 c = 8 x = 10 y = 2 z = 1

Example	Evaluate:	a + b - y
	FIRST: Substitute in values assigned to the variables.	3 + 5 - 2
	THEN: Evaluate using order of operations (PEMDAS)	3 + 5 - 2 8 - 2 6 ← Final Answer

Try the following by plugging in what you know (use above variable values)

6 + 4x	2x + 3y + 4z	2y + 4abc
6 + 4 (_____)	2(___) + 3(___) + 4(___)	2(___) + 4(___)(___)(___)
6 + _____	_____ + _____ + _____	_____ + (___)(___)(___)
_____	_____ + _____	_____ + (____)(____)
	_____	_____ + _____
		_____

Evaluate: $\frac{6b + 3a + 1}{4}$

$$\frac{6(\_\_\_\_\_) + 3(\_\_\_\_\_) + 1}{4}$$

$$\frac{\_\_\_\_\_ + \_\_\_\_\_ + 1}{4}$$

$$\frac{\_\_\_\_\_}{4}$$

FINAL ANSWER: _____

Try some more, using these variable values

$a = 4$ $b = 5$ $c = 8$ $x = 10$ $y = 2$ $z = 1$

1) $ax + c$	2) $2b - a + c$	3) $3y + 4$
4) xyz	5) $4z + 3$	6) $4a - y$
7) $3b + z$	8) $8ab - c$	9) $\frac{ab + z}{2}$
10) $4a + xy$	11) $(x + y)$	12) $\frac{2x + 3y - 2}{c}$

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Name_____

Evaluating Variable Expressions

Date_____ Period____

Evaluate each using the values given.

1) $n^2 - m$; use $m = 7$, and $n = 8$

2) $8(x - y)$; use $x = 5$, and $y = 2$

3) $yx \div 2$; use $x = 7$, and $y = 2$

4) $m - n \div 4$; use $m = 5$, and $n = 8$

5) $x - y + 6$; use $x = 6$, and $y = 1$

6) $z + x^3$; use $x = 1$, and $z = 19$

7) $y + yx$; use $x = 15$, and $y = 8$

8) $q \div 6 + p$; use $p = 10$, and $q = 12$

9) $x + 8 - y$; use $x = 20$, and $y = 17$

10) $15 - (m + p)$; use $m = 3$, and $p = 10$

11) $10 - x + y \div 2$; use $x = 5$, and $y = 2$

12) $p - 2 + qp$; use $p = 7$, and $q = 4$

Name: _____ Date: _____ Core_____

Absolute Value Practice

Find the value of each question:

Define Absolute Value: _____.

1) $|2|=$ _____

2) $|-4|=$ _____

3) $|6|=$ _____

4) $|-10|=$ _____

5) $|3|=$ _____

6) $-|5|=$ _____

7) $-|-8|=$ _____

8) $-|-10|=$ _____

9) $|-9|=$ _____

10) $-|-7|=$ _____

Write a representation for each situation, then find the value.

11) The absolute value of 12. _____

12) The opposite of the absolute value of 10. _____

13) The opposite of the absolute value of negative 12. _____

14) The absolute value of negative 10. _____

15) The opposite of the absolute value of the opposite of 10. _____

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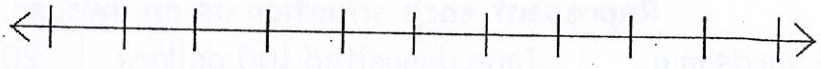
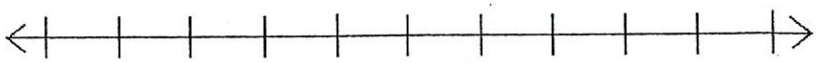
Unit 1 – Week 2

Integer Basics

Name: _____ E# _____

What is an integer?	The set of all whole numbers and their opposites, including zero. ▪ NO _____ or _____
Positive vs. Negative Numbers	Positive numbers: ▪ Numbers _____ than zero. ▪ on a number line, positive numbers are to the _____ of zero Negative numbers: ▪ Numbers _____ than zero. ▪ on a number line, negative numbers are to the _____ of zero Zero: ▪ Neither _____ or _____
Words that represent positive or negative	Positive: ▪ Gain, above sea level, up, rise, increase, deposit, Negative: ▪ Loss, below sea level, down, decrease, withdrawal, Zero: ▪ Sea level, origin
What is a number line?	
What are opposites?	Numbers that are the same distance from 0. Two exact numbers with different signs. ▪ If an integer is positive its opposite will be _____ and if a number is negative its opposite will be _____. ▪ The opposite of zero is _____! a) -7 and ____ b) 28 and ____ c) ____ and -105 e) 0 and ____
What is absolute value?	The distance an integer is from _____. ▪ Any number in absolute value form will be _____! ▪ Absolute value symbol $\lvert x\rvert = x$ or $\lvert -x\rvert = x$ a) $\lvert -9\rvert =$ ____ b) $\lvert 7\rvert =$ ____ c) $\lvert 4\rvert + \lvert -6\rvert =$ ____ e) $\lvert -6\rvert + \lvert -6\rvert =$ ____ f) $-\lvert -3\rvert =$ ____ g) $-\lvert a\rvert =$ ____

How do you compare integers?	◦ Use a number line to compare each pair of integers. Remember: Numbers increase in value as you move from left to right. a) - 4 ◯ - 7 b) - 25 ◯ 0 c) -6 ◯ - 3 d) 5 ◯ -6
How do you order integers?	◦ Use the number line if needed. ◦ Then read the numbers left (the smallest) to the right (the largest.)  Order from least to greatest: -8, -3, 6, 5, -4 Order from greatest to least -8, 12, 1, -6, 5

Are the following integers?

35	$2\frac{1}{2}$	0	-3.8

Represent each situation as an integer.

Loss of 13 yards in a	Jane deposited 100 dollars	200 feet above sea level

Write the opposite of each of the following.

15	-81	0	|18|

Find the absolute value of the following.

|-12|	|47|	-|423|	-|-5|

Write in descending order.	Write in ascending order.
-122, -24, 0, 3, 11, -13, -5	-114, -50, 0, 12, 28, -15, -3

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Homework: Integers Name: _____ E#____

Tell whether each number is an integer. Write Yes or No.	1. -3 2. 4.1 3. $-\frac{1}{2}$ 4. 0
Write as an integer	5. Earned $3. _____ 6. Lost five yards. _____ 7. 618 feet above sea level. _____ 8. A borehole two-thousand feet deep. _____ 9. Eight units above the origin. _____ 10. Fifteen units to the left of the origin. _____ 11. New Orleans, Louisiana, is 6ft. below sea level. _____ 12. In Miami, Florida, the average temperature is 82°F. _____ 13. John made a $85.00 withdrawal yesterday. _____ 14. Russell Wilson scrambled for a 17 yard gain. _____ 15. Sally withdrew $75.00 on Monday. _____
Write the opposite of each integer.	16. 4 17. -33 18. -142 19. 229 20. 0 21. 201
Find the absolute value.	22. $\lvert 57 \rvert$ 23. $\lvert -31 \rvert$ 24. $\lvert -28 \rvert$ 25. $\lvert 0 \rvert$ 26. $-\lvert 0 \rvert$ 27. $-\lvert -31 \rvert$
Compare the integers.	28. -6 ☐ 5 29. -31 ☐ -25 30. $\lvert 6 \rvert$ ☐ $\lvert -6 \rvert$ 31. $\lvert -46 \rvert$ ☐ $\lvert -51 \rvert$ 32. $\lvert 82 \rvert$ ☐ $-\lvert 88 \rvert$

)rder each set of ntegers	Ascending Order: 33. -5, 11, 64, 0, -88, -6 34. 24, -8, 12, -24, 0, -55 Descending Order: 35. -235, 331, -413, 231, -415 36. 346, -626, -744, -364, 262
)rder from highest .levation to lowest.	37. 229m below sea level, 307m below sea level , 415 above sea level 320m above sea level , 125 m above sea level, 260 below sea level
Vhich is the ıarmest?	38. F. -25 ° C G. -13 °C H. 0 °C J. 4 °C
Vrite an expression o represent these ituations.	39. Felix is a superintendent for an apartment building. Using the elevator, he goes from the ground floor down 2 floors to the basement, then up 6 floors and then down 3 floors. 40. Luke is a messenger for a package-delivery company. He starts at the company's office and walks 5 blocks west, 3 blocks east, then 1 more block east, and finally 3 blocks west.

Addition/Subtraction of Integers

Explore: For the next 5 minutes, work with your partner to try and figure out the following integer problems. See if you can agree on an answer.

1. -7 - 5 | -10 - (-15) | -2 + (-2)

2. -8 + (-3) | 12 - 18 | 14 - (-10)

Addition/Subtraction Integer Rules
Important to Understand:
Step 1: Examples:
Step 2: Examples:
Step 3: Examples:

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are - Infinite Pre-Algebra

Name_____

/Subtracting Integers

Date_____ Period____

each sum.

1) $(-12)+7$

2) $(-10)+(-7)$

3) $(-6)+12$

4) $8+7$

5) $3+4$

6) $(-45)+9$

7) $(-1)+(-46)$

8) $(-30)+10$

9) $(-34)+50$

10) $38+(-5)$

Find each difference.

11) $2-(-2)$

12) $(-1)-10$

13) $8-7$

14) $(-8)-(-6)$

15) $11 - 4$

16) $48 - (-31)$

17) $18 - 41$

18) $(-38) - 30$

19) $(-1) - (-3)$

20) $(-1) - (-40)$

21) $(-10) - 47$

22) $(-29) - 29$

23) $13 + (-29)$

24) $38 + 22$

25) $(-32) - 44$

26) $(-12) + (-11)$

27) $2 + 15 + 4$

28) $16 + (-13) + 5$

29) $2 - (-9) - 8$

30) $10 + 3 - (-8)$

10A

Integer Addition and Subtraction (A)

3 + (-8) =	(-9) - (-4) =	7 - 5 =
6 - (-4) =	(-4) - (-2) =	(-4) - 10 =
6 - 5 =	(-2) - 5 =	(-2) - 7 =
(-8) + (-2) =	8 + 6 =	(-9) + 10 =
8 + (-10) =	2 - (-10) =	8 - 5 =
8 - (-2) =	1 - (-7) =	4 + 2 =
(-2) + 6 =	(-4) - 4 =	9 - (-7) =
(-1) - 0 =	7 - 5 =	(-5) + (-10) =
(-1) - (-2) =	(-5) - (-6) =	9 - (-9) =
7 - 4 =	(-2) + 5 =	(-4) - (-10) =

6\1

Integer Addition and Subtraction (A)

31 - (-17) =	93 - 22 =	(-20) + 41 =
20 + 62 =	82 + 38 =	(-8) + (-23) =
87 - (-36) =	34 + 62 =	20 - (-41) =
3 + (-63) =	(-63) - (-79) =	55 + 44 =
(-87) - (-31) =	84 - (-37) =	(-43) - 71 =
(-25) - 88 =	(-56) + 91 =	(-39) + 47 =
(-3) + (-71) =	52 + 23 =	(-61) - 26 =
(-3) - 33 =	(-29) + (-87) =	(-2) - (-56) =
24 - 50 =	65 + 19 =	46 + 46 =
43 - (-6) =	(-20) - 37 =	12 + (-84) =
5 + (-40) =	75 - (-83) =	(-36) + (-29) =

1\A

Unit 1 Week 4

Unit 1 Review		
-7 – 12	14 + (-19)	-6 + 12 – 18
Simplify.		
-12a – 15b + 5a + 7b	-13x + 15y – 5y + 13x	12f – 15f – 6g – 10g
-7(3x – 10)	4(x – 2) – 10x	-3(x – 5) + 2(x – 3)
Simplify		
$-49 \div 9 + 10$	$-13 \cdot -3$	$15 \div -3 - 12(3 + 4)$
What is the absolute value of -14?	What is the opposite of the absolute value of 10?	What is the absolute value of 0?
Write the following expressions		
3 less than a number	15 more than 3 times a number	The quotient of a number and -3
The product of a number and – 5	4 less than -3 times a number	8 more than the difference between a number and 15
Word Problems		
Michael dove into the water. He went down 5 feet each second for 4 seconds. What integer represents Michael's position after 4 seconds?	Susan deposited $84 into her bank, then she withdrew $48. What integer represents Susan's account after the withdrawal?	The highest temperature in North Carolina last year was 102 degrees. The lowest temperature in Antarctica was -189 degrees. What is the difference between these two numbers?

Name: _____ Date: _____ Core: _____

Homework: Combining Like Terms with Integers

1. $6y + (-13y)$	2. $-12z + (-9z)$	3. $-8x + 9x - 13x$
4. $18e + (-7e) - 27e$	5. $-3d + 18d + (-7d)$	6. $-9t + 9 - 17t$
7. $15x + 2x - 12x - 13x^2 - 15$	8. $2p^4 + 3p + 12 - 18p^4 - p - 7$	9. $12m + (-9) - 45m$
10. $15x - 65x$	11. $-133x + (-212x)$	12. $124k - (-65k)$
13. $-8 + 8k + 14 - 19k$	14. $5(3e + 5) - 25e$	15. $-12n - 18n + 9(4n + 3)$

16. $8(z^2 + 3) - 19z^2 + 14$	17. $12p + 12p^2 - 11p - p - 12p^2$
18. $-6(3m + 2) - 6m + (-13)$	19. $-5(2k + 2) - 14k + (-32)$

12f

Name: _____ Date: _____

Simplify Expressions Worksheet

Simplify the expressions.

1 a. $-4y + (-5)y$	**1 b.** $-5 - 7(9y - 1)$
2 a. $-10(-7w - 2 - 6w^2) - 6w$	**2 b.** $\dfrac{6s^{10}}{-6s^{11}}$
3 a. $v^3 \cdot v^5$	**3 b.** $10(k + 4) - 10$
4 a. $3c + 9c + 9 + 5c$	**4 b.** $-7(x + 6) + 9(x - 3)$
5 a. $10 - 10b - 3b - 2 - 8b$	**5 b.** $(7w + 5 + 10w^2) - 8w$
6 a. $8 + (-2n + 8)$	**6 b.** $-c + 4k - 8c - 7 - 8c$
7 a. $-10(4w + 9) + 2(10 - 10w)$	**7 b.** $8 - 10(p^2 + 7p + 3) + 10p^2$

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Name_____

Using the Distributive Property

Date_____ Period____

Simplify each expression.

1) $-6(a+8)$

2) $4(1+9x)$

3) $6(-5n+7)$

4) $(9m+10)\cdot 2$

5) $(-4-3n)\cdot -8$

6) $8(-b-4)$

7) $(1-7n)\cdot 5$

8) $-6(x+4)$

9) $5(3m-6)$

10) $(-6p+7)\cdot -4$

11) $5(b-1)$

12) $(x+9)\cdot 5$

13p

Name:_____ Date:_____ Core:_____

Review of Writing Expressions

Write each phrase as an algebraic expression.

1. thirteen plus v _____13 + v_____
2. six less than w _____
3. three times d _____
4. the difference of h and 8 _____
5. 23 divided into y _____
6. $18 less than the sale price _____
7. the quotient of n and 12 _____
8. 8 less than 25 multiplied by a number q _____
9. 3 more than the difference of 20 and a number m _____
10. 5 less than the quotient of a number z and 16 _____
11. 8 times the product of 28 and a number g _____
12. 10 plus a number s times 5 _____
13. 10 less than the quantity j multiplied by 44 _____

Translate the following algebraic expressions into words.

14. $y - 7$ _____
15. $5(x - 4)$ _____
16. $m \div 16$ _____
17. $(s + 10) - 8$ _____

Write a verbal expression for each.

ab

$3x - 7$

$2x$

$x - 6.$

Write an algebraic expression for each item. Then, choose an amount for each variable and simplify the expression.

1. A small company has $1000 to distribute to its employees as a bonus. How much money will each employee get?

2. An electrician charges $45 per hour and spends $20 a day on gasoline. Write an algebraic expression to represent his earnings for one day.

3. Jenny earns $30 a day working part time at a supermarket. Write an algebraic expression to represent the amount of money she will earn in d days.

4. Brad takes "h" hours and "m" minutes to complete a mini-triathlon. His friend Leo takes twice as long to finish the race.

Algebraic Expressions Match-Up Part 2

Use these clue cards to solve the algebraic expression problems from the Algebraic Expressions Match-Up Activity

1. Clue: Alex gives his turtle 3 ounces of food at every feeding.	2. Clue: Beth's brother is 5 years old.
3. Clue: Sue's friend Jill takes 4 cookies.	4. Clue: Ann will run 5 miles tomorrow.
5. Clue: Pete drives his car 45 miles total.	6. Clue: Eddie earns $4.50 per hour.
7. Clue: Spot fetched 9 rocks.	8. Clue: Katie has 6 friends.
9. Clue: The math test has 20 problems.	10. Clue: 19 eggs cracked

Cut out the cards and match each word problem to the correct algebraic expression. Letters do not necessarily match the words (for example, "f" might not represent the word "food". Paste the expression beside the correct word problem.

1.If Alex feeds his turtle the same amount of food twice a day, how much food will he feed the turtle in a week?	2.Beth is 6 years younger than twice her brother's age. How old is Beth?
3.Sue takes 5 more cookies than her friend Jill. If Sue puts 1 cookie back, how many cookies does she have?	4. Ann ran 7 miles on Monday, 6 miles yesterday, and 8 miles today. If she runs an unknown number of miles tomorrow, how many miles will she have run in all?
5. Pete will drive a car each day he is at the beach. If he drives the same distance each of the 3 days he is there, how far will he drive each day?	6. Eddie earns an hourly wage for delivering pizza. How much will he earn if he delivers pizza for 4 hours?
7. Spot fetched 12 sticks and some rocks when he played outside. How many objects did he fetch in all?	8. Katie's grandmother baked 5 cookies for Katie and 3 cookies for each of her friends. How many cookies did she bake in all?
9.Sally answered 5 problems incorrectly on her math test. If she didn't finish the last 2 problems, how many problems did she answer correctly?	10. Farmer Jones has 25 hens. Each hen laid 6 eggs, but some eggs cracked. How many eggs did not crack?

$r \div 3$	$2r - 6$
$4 \times r$	$(r + 5) - 1$
$(2 \times r) \times 7$	$(r - 5) - 2$
$5 + (3 \times r)$	$(7 + 6 + 8) + r$
$12 + r$	$(25 \times 6) - r$

Variables, E[illegible]sions, and Formulas

Name _____

1. Mary earns an allowance of $5 per week. She also earns $6 per hour baby-sitting. Write an expression that would represents the total amount of money she earns in one week. If Mary babysits for 6 hours, how much money will she make?

2. The Food Lion grocery store advertises a special on 2-liter bottles of soft drinks. The first bottle purchased is $1.50 and each bottle after that is $1. Write an expression that can be used to find the total cost. Find the total cost if you purchase 5 bottles.

3. One Middle School sold tickets for a school play. The price of an adult ticket was $5, and the price of a student ticket was $3. Write an expression that represents the total amount of money collected. Suppose 150 adult tickets and 100 student tickets were sold. How much money was collected?

4. Ms. Li's car needs to be repaired. The cost of the repair is going to be $90 per hour for labor and an additional $220 for parts. Write an expression that would represent the cost of getting the car repaired if a mechanic works on it for h hours. Find the total cost if the mechanic works on the car for 4 hours.

5. The formula that is used to convert Fahrenheit (F) to Celsius (C) is $5 \cdot (F - 32) \div 9$. Convert 77°F to degrees in Celsius.

6. In order to encourage recycling, city of Taiyuan is offering 20 cents for every kilogram of newspapers collected, five cents per plastic bottle. Write an expression for the total amount earned from recycling. If Chen brings in ten kilograms of newspapers, 32 plastic bottles, how much will he receive?

7. Borders book store is advertising a sale. The price of hardback books is $4.50 and the price of paperback books is $2.50. Write an algebraic expression that can be used to find the total amount of money spent at the bookstore. Suppose Tom buys 3 hardback books and 2 paperback books. Find the total amount he spent at the book sale.

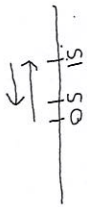
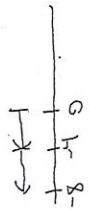
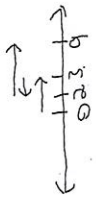
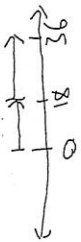
8. Find the total area of a rectangle tile using the formula lw with the length $is\ 6in$ and a $w\ is\ 8in$.

9. Ms. Li want to make a rectangular garden. The length of the garden is 8ft and width of the garden is 7ft. Use the formula $2l + 2w$ to find the perimeter of the garden.

Word Problems wit[illegible]ber Lines

Name:

John jumped forward 5 feet, then he jumped back 8 feet. What position is he currently at?	
Michael lost 4 dollars, but then he found 9 dollars. How much money does Michael have?	
The temperature dropped 4 degrees each hour for 3 hours. The temperature started at 72 degrees. What is the new temperature?	
Jerry lost $20 dollars four times in a row. Use a number line to find the end result for Jerry.	
Angela dove 4 feet into the water. She then rose 2 feet and sunk another 5 feet. What is her current position?	
The football team lost 7 yards and then gained 4 yards. What is their current position?	

Create a word problem for the number line to the right.	
Create a word problem for the number line to the right.	
Create a word problem for the number line to the right.	
Create a word problem for the number line to the right.	
Create a word problem for the number line to the right.	

5

20

Use the distributive property to represent the area model.

	x	5
3		

Total Area: _____

	x	8
7x		

Total Area: _____

	8	12
4y		

Total Area: _____

	4g	9
6g		

Total Area: _____

	3w	11
$2w^2$		

Total Area: _____

Find the GCF to find the dimensions of the rectangle.

5	5y	35

Length: _____ Width: _____

9d	$18d^2$	63d

Length: _____ Width: _____

4	4s	60

Length: _____

Width: _____

4	$12y^2$	40y

Length: _____

Width: _____

9x	27x	$9x^2$

Length: _____

Width: _____

2	2x	6

What is the Width: _____

5y	
10	

length

What is the length: _____

2	8x	20

What is the Width: _____

5	10	5x

What is the length: _____

A rectangle has a length of 2x and a width of 3y. What is the area and perimeter of the rectangle?

A square has a sidelength of 5z + 3. What is the area and perimeter of the square?

Find the average of the following 5 numbers.

-3, 5, 7, -6, 12

Find the average of the following 4 numbers.

5, -10, -8, -7

The hot air balloon rose 200 feet in 10 seconds. How many feet did the balloon rise in 1 second?

The diver dove 50 feet in 10 seconds. What is the diver's position after 1 second?