Warm up back of p 36

Evaluate if x = 6, y = 8, and z = 3

1) 3z + (y - x)

$3(3)+(8-6)$

$9+2$

11

2) 5x - (y + 2z)

$5(6)-(8+2(3))$

$30-14$

16

3) $x^2 + y^2 - 10z$

$6^2+8^2-10(3)$

$36+64-30$

70

$\left(\frac{2}{3}\right)^2$ $\frac{2}{3}\left(\frac{2}{3}\right)$

$\frac{2^2}{3^2}$ $\frac{4}{9}$

$x = -2$

x^2

$(-2)(-2)$

4

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
Evaluating Expressions	• **What is an algebraic expression?** An expression that contains one or more Variable • **To evaluate** Substitute the variables with their given values, then follow the order of operations
Examples	**Directions:** Evaluate each expression using the variable replacements.

1. $7x + 4y$ if $x = 5$ and $y = -3$

23

2. $9a^2 - 2b^2$ if $a = 4$ and $b = 7$

46

3. $4m^2 + 5m$ if $m = -2$

$4(-2)^2 + 5(-2)$

$4(4) + -10$

$16 - 10$

6

4. $(8c - d) \div cd$ if $c = 2$ and $d = -4$

$(8(2) - (-4))$

$16 + 4$

$20 \div 2(-4)$

$10(-4)$

-40

5. $(ab)^2 - 4b^3 + 1$ if $a = 3$ and $b = 2$

$(3(2))^2 - 4(2)^3 + 1$

$6^2 - 4(8) + 1$

$36 - 32 + 1$

5

6. $2|r| - 3rs$ if $r = -5$ and $s = 4$

$2|-5| - 3(-5)(4)$

$2(5) - -15(4)$

$10 + +60$

70

7. $(w - v)^2 + 2v - 7w$ if $w = -4$ and $v = 1$

55

8. $\frac{2}{3}x^2 - 5x + 8$ if $x = 6$

2

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
PARTS OF AN EXPRESSION	Algebraic Expression

$14x + 9 - 2x + 8 - 5x + 1$

Variable Terms
(Terms WITH a variable)
$14x, -2x, -5x$

Constant Terms
(Terms WITHOUT a variable)
$9, 8, 1$

Coefficients
(Number NEXT TO a variable)
$14, -2, -5$

COMBINING LIKE TERMS

You can simplify an algebraic expression by **combining like terms.** This means to combine common variable terms and constant terms.

Example: Simplify the expression below:

$14x + 9 - 2x + 8 - 5x + 1 =$ $7x+18$

EXAMPLES

Directions: Simplify each expression.

11. $4x + 7x$
$11x$

12. $k - 6k$
$-5k$

13. $6c + 1 + 11c$
$17c + 1$

14. $7 - 2y + 12$
$-2y + 19$

15. $11m - 5m - 13$
$6m - 13$

16. $-8 + 8a - 16$
$8a - 22$

17. $9v + 7 - 3v - v$
$5v + 7$

18. $4 - 2n - 3n - 19$
$-5n - 15$

Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples	
	Directions: Simplify each expression by **combining like terms**.	
	1. $10x - 16x$	2. $12a - 8 + 4a + a$
	3. $5w - 6 - 8 + 7w$	4. $-7k + 17 - 2k - 3$
	Directions: Simplify each expression by distributing.	
	5. $8(x + 5)$ $8x + 40$	6. $-4(2x - 9)$ $-8x + 36$
	7. $7(6 - x)$ $42 - 7x$	8. $-3(x + 1)$ $-3x - 3$
Simplifying Expressions	An algebraic expression is in **simplest form** when it has no like terms and no parenthesis **To simplify an algebraic expression:** 1 Distribute → 2 CLT	
Examples	**Directions:** Simplify each expression.	
	1. $3(x - 5) + 8x + 1$ $3x - 15 + 8x + 1$ $11x - 14$	2. $5(n + 6) - 21$ $5n + 30 - 21$ $5n + 9$
	3. $-7(w + 4) + 2w - 15$ $-7w - 28 + 2w - 15$ $-5w - 43$	4. $12(4 - k) - 9k$ $48 - 12k - 9k$ $48 - 21k$

Homework

According to Astronomers, What Is a "Light Year"?

Write the letter of each exercise in the box containing the answer.
Answers for the top half of the page are in the top row of boxes.

Evaluate for $a = 5$, $b = 2$, $c = 6$.

E. $8a$	S. $a + b + c$
O. $12b$	I. $50 - c$
T. ab	W. $7(a + c)$
V. $4bc$	T. $\frac{c}{b}$

Evaluate for $w = 9$, $x = 10$, $y = 3$.

E. $5(x + 2)$	H. $\frac{6x}{5y}$
I. $(4w) \div y$	T. $100 - (x + y)$
M. $8(x + y)$	N. $x \cdot x$
S. $\frac{wx}{y}$	L. $\frac{w + x + y}{2}$

12	10	96	44	30	8	87	77	40	11	48	60	17	104	24	100	3	4	13

Evaluate for $k = 2.5$, $m = 4$, $n = 12$.

S. $2km$	H. $\frac{m + n}{m}$
E. $n - (m + k)$	A. $3(m + n)$
I. $m \cdot m \cdot m$	S. $\frac{n \cdot n}{m}$
O. $\frac{kn}{5}$	E. $\frac{150}{km}$

Evaluate for $d = 10$, $u = 7$, $e = 3.2$.

I. de	C. $9du$
W. $\frac{u \cdot u}{d}$	L. $d(e + 5)$
S. $\frac{500}{d \cdot d}$	R. $15(d - u)$
T. $u - e$	L. $\frac{ue}{eu}$

28	4.9	64	3.8	4	75	82	15	5	20	9	630	48	1	6	45	32	5.5	36

Did You Hear About . . .

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20 ?

Simplify the expression. Write the word next to the correct answer in the box that contains the exercise number.

1 $7(n+2)+3n$

2 $8(n-3)-4n$

3 $2(3n+5)+9$

4 $-5(n+6)-2n$

5 $-2(4n-1)+15$

6 $4(9-3x)-x$

7 $8x-3(2+2x)$

8 $16+5(x-4)$

9 $16-5(x-4)$

10 $9-4(7-2x)$

11 $3d+8(-d-5)$

12 $-1-6(2-9d)$

13 $7d+2(4d+1)-9$

14 $-3d+3(2-8d)+11$

15 $15d-6(2d-5)-7$

16 $12+4(-3y-1)-y$

17 $-20-2(8-5y)+6y$

18 $-y+15-3(10y+3)$

19 $16-5y+5(-8-y)$

20 $-9y-2(2-7y)+4$

Answers 1 - 10

- $6n+19$ LITTLE
- $-5x+36$ UP
- $-8n+19$ EXPLODED
- $2x-6$ ON
- $10n+14$ THE
- $-5x+27$ RUNNING
- $-8n+17$ WHO
- $8x-6$ SIDEWALK
- $4n-24$ UNLUCKY
- $5x-4$ THE
- $-13x-4$ WITH
- $-7n-30$ BOY
- $8x-19$ ESCALATOR
- $6n-30$ CRACK
- $-13x+36$ TRIPPED

Answers 11 - 20

- $-31y+6$ DOWN
- $16y+6$ AFTERNOON
- $3d+23$ TWO
- $-10y-36$ DAYS
- $-5d-40$ AND
- $-27d+17$ NEXT
- $3d+17$ BLOOD
- $-10y-24$ THE
- $16y-36$ FALLING
- $54d-13$ SPENT
- $-27d-13$ OUT
- $-13y+8$ HOURS
- $5y$ STAIRS
- $15d-7$ THE
- $5y+6$ TRYING

3.12