WARM-UP

- Complete Title Page (handout)
- Get out your NEW spiral for this class ONLY -- If you want to buy one from me, the cost is $1.

Homework:

What questions do you have?

1-3 Algebraic Expressions

Vocabulary

Review

Simplify each numerical expression.

1. $6(5-2)+7=$ 25
2. $\frac{7+15}{(-4)+(-1)}=$ −2
3. $(-5)^2-(4)^2=$ 9

Vocabulary Builder

evaluate [noun] ee VAL you ayt

Definition: To **evaluate** an expression means to substitute a number for each variable and then simplify to get a value.

Example: To **evaluate** xy for $x = 2$ and $y = 3$, substitute 2 for x and 3 for y: $xy = (2)(3) = 6$.

Use Your Vocabulary

Evaluate each expression for the given values of the variables.

4. $a+\frac{b}{4}$ for $a=-2$ and $b=8$ 0
5. $x-x^2y$ for $x=3$ and $y=-4$ 39

Take note

Key Concept Properties for Simplifying Algebraic Expressions

6. Draw a line from each property in Column A to an algebraic example of the property in Column B. Let a, b, and c represent real numbers.

Column A	Column B
Distributive Property for Subtraction	$-(a-b)=-a+(-b)=-a-b$
Multiplication by 0	$1\cdot a=a$
Multiplication by −1	$-1\cdot a=-a$
Opposite of a Sum	$a(b-c)=ab-ac$
Opposite of a Difference	$0-a=0$
Opposite of an Opposite	$-(a-b)=-a+b=b-a$

Problem 1 Modeling Words With Algebraic Expressions

Got It? Which algebraic expression models the word phrase *two times the sum of a and b*?

7. The word "times" means you should use multiplication / addition / division.
8. The word "sum" means you should use multiplication / addition / division.
9. Now write the expression. $2\cdot(a+b)$ $2(a+b)$

Complete each numerical or algebraic expression by writing a letter, number or operation sign in each box.

10. The difference of 7 and 4. $7\ -\ 4$
11. The product of 3 and x. $3\ \cdot\ x$
12. The number y increased by 2. $y\ +\ 2$
13. The quotient of 48 and 3. $48\ \div\ 3$
14. The number t is doubled then decreased by 1. $2t\ -\ 1$
15. Five taken away from q. $q\ -\ 5$

Problem 2 Modeling a Situation

Got It? You had $150, but you are spending $2 each day. What algebraic expression models this situation?

16. Define the variable. Let d = # of days
17. Complete the model to write the algebraic expression.

Relate	Starting amount	−	the amount spent per day	·	the number of days
Write	150	−	2	·	d

18. Now write the expression. $150-2d$

Problem 3 Evaluating Algebraic Expressions

Got It? What is the value of the expression $\frac{2(x^2-y^2)}{3}$ for $x=6$ and $y=-3$?

19. Substitute the given values for each variable into the expression.
$\frac{2(x^2-y^2)}{3}=\frac{2(6^2-(-3)^2)}{3}$

20. Now simplify the numerical expression.

Problem 4 Writing and Evaluating an Expression

Got It? In basketball, teams can score by making two-point shots, three-point shots, and one-point free throws. What algebraic expression models the total number of points that a basketball team scores in a game? If a team makes 10 two-point shots, 5 three-point shots, and 7 free throws, how many points does it score in all?

21. Define the variables.

Let t = the number of two-point shots,

Let h = _____, and

Let f = _____.

22. Complete the expression for the total number of points a team can score in one game.

2 ___ + 3 ___ + ___

23. Evaluate the expression for $t = 10$, $h = 5$, and $f = 7$.

24. The team scored ___ points.

The expression $5ax + 6y - 7$ has three *terms*: $5ax$, $6y$, and -7.

The *coefficient* is the numerical factor of a term: 5, 6

The *constant term* is the term with no variables: -7.

Identify the *coefficients* and the *constant term* in each expression.

25. $2x^2 - 3x + 5$

Coefficients: ___ and ___

Constant: ___

26. $-4yx + 8x - 3$

Coefficients: ___ and ___

Constant: ___

Problem 5 Simplifying Algebraic Expressions

Got It? Combine like terms. What is a simpler form of the expression $-4j^2 - 7k + 5j + j^2$?

At the right is one student's solution.

Rose's Solution

$-4j^2 - 7k + 5j + j^2 = -3j^2 - 7k + 5j$

$= -3j^2 - 2kj$

27. What error did Rose make?

28. Simplify the expression correctly.

Lesson Check • Do you UNDERSTAND?

Compare and Contrast How are algebraic expressions and numerical expressions alike? How are they different? Include examples to justify your reasoning.

29. How is an algebraic expression different from a numerical expression?

30. Put an **N** next to each *numerical expression*. Put an **A** next to each *algebraic expression*.

$3x + 2$ ___ $6 \cdot 4$ ___ $a - 7$ ___ $4 \cdot 1 + 10$ ___ $\frac{5g}{3} + h$ ___

Math Success

Check off the vocabulary words that you understand.

☐ term ☐ evaluate ☐ coefficient ☐ constant ☐ terms ☐ like terms

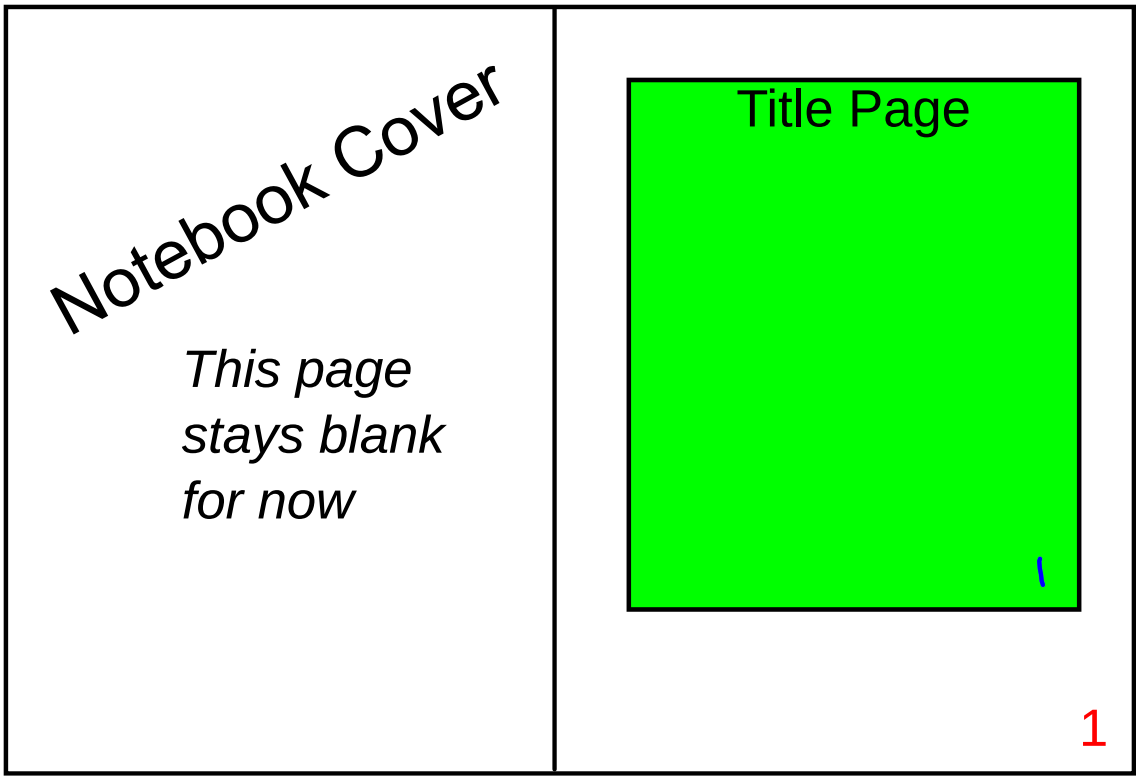
Rate how well you can *write and evaluate algebraic expressions*.

Need to review 0 2 4 6 8 10 Now I get it!

video

Algebra 2

Interactive Notebook



Course Description

2

Class Expectations

3

Persevere

4

Table of Contents:

Page(s)	Topic	Book Sect.

5

Table of Contents:

Page(s)	Topic	Book Sect.

Table of Contents:

Page(s)	Topic	Book Sect.