

Quick Notes

Chapter 5 Study Guide

Lesson 1 - Algebraic Expressions

Variable $3x$

Coefficient $3x$

Evaluating expressions

Example 1: $a=2$ $y=3$

$$ay \rightarrow a \cdot y \quad 2(3) = 6$$

Example 2: $a=2$ $y=3$

$$a^3 \rightarrow a \cdot a \cdot a \quad 2 \cdot 2 \cdot 2 = 8$$

Lesson 3 - Properties of Operations

Commutative Property $a+b+c = b+c+a$

Associative Property $(a \cdot b) \cdot c = a \cdot (b \cdot c)$

Additive Identity Property $x+0 = x$

Multiplicative Identity Property $x \cdot 1 = x$

Multiplicative Property of Zero $x \cdot 0 = 0$

Lesson 4 - Distributive Property

Example 1: $4(10+2)$
 $4 \cdot 10 + 4 \cdot 2 = 40 + 8 = \boxed{48}$

Example 2: $6(2x+y)$
 $6 \cdot 2x + 6 \cdot y = \boxed{12x + 6y}$

Lesson 5 - Simplifying Expressions

Example 1: $(7x) + 2y + (4x) - 1$
 $(7x + 4x) + 2y - 1$
 $11x + 2y - 1$

Example 2:

$$-6a + 6a = 0$$

Lesson 6 - Adding Linear Expressions

Example 1: $(2c + 1) + (4c - 6)$

$$\begin{array}{r} 2c + 1 \\ + 4c - 6 \\ \hline 6c - 5 \end{array}$$

Lesson 7 - Subtracting Linear Expressions

Method 1:

Distribute
the negative

$$\begin{array}{l} (x+2) - (x+1) \\ x+2 - (x) - (1) \\ \cancel{x}+2 - \cancel{x} - 1 \\ = 1 \end{array}$$

Method 2:

$$\begin{array}{r} (x+2) \\ - (x+1) \\ \hline 0x + 1 = 1 \end{array}$$

Chapter Practice

Evaluate each expression if $a = 3$, $b = 5$, and $c = 1$.

1. $b - c$

1. _____

2. $ac + b$

2. _____

3. $\frac{2(b + c)}{a}$

3. _____

Use the Distributive Property to evaluate each expression.

4. $4(9 + 1)$

4. _____

5. $-5(6 + x)$

5. _____

Name the property shown by each statement.

6. $c \times 1 = c$

6. _____

7. $83 + (52 + 17) = (83 + 52) + 17$

7. _____

8. $22 + b + 18 = b + 22 + 18$

8. _____

Are the following expressions equivalent? Circle YES or NO. Provide PROOF and/or justify your answer.

9. $2(x - 7) \stackrel{?}{=} 2x + 14$ YES NO

10. $2(y + 3) + 4 \stackrel{?}{=} 2y + 10$ YES NO

Chapter 5 Study Guide

5. Which expression is equivalent to $-5(x + 10)$?

F. $5x + 50$

G. $-5x + 10$

H. $-5x - 50$

I. $5x - 50$

5. _____

6. What is $-2y + 10 + 2y - 8$ simplified?

A. 10

B. 8

C. 6

D. 2

6. _____

7. Simplify $x + 4 - 5x - 2$.

F. $-5x + 2$

G. $-5x - 2$

H. $-4x + 2$

I. $-4x - 2$

7. _____

8. Add $(11x + 2) + (9x - 4)$.

F. $20x - 6$

G. $20x - 2$

H. $2x - 6$

I. $2x - 2$

8. _____

9. Subtract $(8x + 6) - (x + 4)$.

A. $7x + 2$

B. $7x + 10$

C. $9x + 10$

D. $9x + 2$

9. _____

10. In the expression $12a + 5$, identify the coefficient.

F. 12

G. a

H. 5

I. 0

10. _____

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word problem Practice

Pg. 352 # 4

Pg. 353 # 11, 12

Name the property shown by each statement.

13. $4m \cdot 0 \cdot 3m = 0$

13. _____

14. $5 + (a + 17) = (5 + a) + 17$

14. _____

Use the Distributive Property to rewrite each expression.

15. $4(x + 7)$

15. _____

16. $-5(y + 10)$

16. _____

17. Write $3x - 1 + 5x + 7$ in simplest form.

17. _____

18. Find $(x + 1) + (x + 1)$.

18. _____

19. Find $(4x - 7) - (2x - 2)$

19. _____

Chapter Practice

Evaluate each expression if $a = 3$, $b = 5$, and $c = 1$.

1. $b - c$

1. 4

2. $ac + b$

2. 8

3. $\frac{2(b+c)}{a}$

3. 4

Use the Distributive Property to evaluate each expression.

4. $4(9 + 1)$

4. 40

5. $-5(6 + x)$

5. $-30 - 5x$

Name the property shown by each statement.

6. $c \times 1 = c$

6. Multiplicative

Identity

7. $83 + (52 + 17) = (83 + 52) + 17$

7. Associative

addition

8. $22 + b + 18 = b + 22 + 18$

8. Commutative

addition

Are the following expressions equivalent? Circle YES or NO. Provide proof and/or justify your answer.

9. $2(x-7) \stackrel{?}{=} 2x+14$

$2(x-7)$

$2(x) + 2(-7) = 2x + -14$

NO $2x+14 \neq 2x+-14$
↑

10. $2(y+3) + 4 \stackrel{?}{=} 2y+10$

$2(y+3) + 4$

$2(y) + 2(3) + 4 = 2y + 6 + 4 = 2y + 10$

YES $2y+10 = 2y+10$

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5. Which expression is equivalent to $-5(x + 10)$?

F. $5x + 50$

G. $-5x + 10$

H. $-5x - 50$

I. $5x - 50$

5. H

6. What is $-2y + 10 + 2y - 8$ simplified?

A. 10

B. 8

C. 6

D. 2

6. D

7. Simplify $x + 4 - 5x - 2$.

F. $-5x + 2$

G. $-5x - 2$

H. $-4x + 2$

I. $-4x - 2$

7. H

8. Add $(11x + 2) + (9x - 4)$.

F. $20x - 6$

G. $20x - 2$

H. $2x - 6$

I. $2x - 2$

8. G

9. Subtract $(8x + 6) - (x + 4)$.

A. $7x + 2$

B. $7x + 10$

C. $9x + 10$

D. $9x + 2$

9. A

10. In the expression $12a + 5$, identify the coefficient.

F. 12

G. a

H. 5

I. 0

10. F

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word problem practice	Expression	Answer
pg. 352 #4	$\frac{12.49 + 0.99g}{}$	$\frac{\$18.43}{}$
pg. 353 #11	$\frac{50 + 0.17m}{}$	$\frac{\$75.50}{}$
#12	$\frac{19.99d + 0.17m}{}$	$\frac{\$51.88}{}$

Name the property shown by each statement.

13. $4m \cdot 0 \cdot 3m = 0$

14. $5 + (a + 17) = (5 + a) + 17$

Use the Distributive Property to rewrite each expression.

15. $4(x + 7)$

16. $-5(y + 10)$

17. Write $3x - 1 + 5x + 7$ in simplest form.

18. Find $(x + 1) + (x + 1)$.

19. Find $(4x - 7) - (2x - 2)$

13. Multiplicative
Property of

14. Associative zero
of addition

15. $4x + 28$

16. $-5y - 50$

17. $8x + 6$

18. $2x + 2$

19. $2x - 5$