Chapter 3 Review

Vocabulary

Addition Property of Equality	**126**	**Distributive Property**	**113**
Addition Property of Inequality	**132**	**formula**	**127**
algebraic expression	**112**	**inequality**	**132**
Associative Property	**104**	**integer**	**100**
coefficient	**112**	**literal equation**	**127**
Commutative Property	**114**	**Subtraction Property of Equality**	**125**
constant	**112**	**Subtraction Property of Inequality**	**132**

Key Skills & Exercises

Lesson 3.1

➤ ***Key Skills***

Add two or more integers.

When the terms have like signs, find the sum of the absolute values, and use the common sign. When the terms have unlike signs, find the difference of the absolute values. Use the sign of the integer with the greater absolute value.

$-4 + (-7) = -11$ $\quad 4 + 7 = 11$

$26 + (-9) = 17$ $\quad -26 + 9 = -17$

To add more than two integers, use the Associative Property of Addition.

$$(-5 + 5) + -3 = 0 + (-3) = -3$$

or

$$-5 + (5 + (-3)) = -5 + 2 = -3$$

➤ ***Exercises***

Find each sum.

1. $-17 + 6$ **2.** $48 + (-15)$ **3.** $-23 + (-25) + 3$ **4.** $-39 + 68$

5. $33 + (-55)$ **6.** $-214 + 214$ **7.** $6 + (-7) + (-9)$ **8.** $-8 + 8 + (-12)$

Lesson 3.2

➤ ***Key Skills***

Subtract integers.

To subtract -8, add the opposite. $-16 - (-8) = -16 + 8 = -8$

To subtract 19, add the opposite. $-38 - 19 = -38 + (-19) = -57$

➤ ***Exercises***

Find each difference.

9. $9 - (-15)$ **10.** $48 - (-48)$ **11.** $-13 - 28$ **12.** $39 - (-18)$

13. $-67 - (-42)$ **14.** $-23 - (-72)$ **15.** $-42 - (-42) - 53$ **16.** $8 - 14 - 27$

Lesson 3.3

➤ Key Skills

Simplify expressions with several variables by adding like terms.

To simplify $(3r + 7t) + (4r - 8t)$, use this procedure.

$(3r + 7t) + (4r - 8t)$	Given
$(3r + 7t) + (4r + (-8t))$	Definition of Subtraction
$(3r + 4r) + (7t + (-8t))$	Rearrange terms.
$7r + (-1)t$	Combine like terms.
$7r - t$	Definition of Subtraction

➤ Exercises

Simplify.

17. $(6a - 1) + (5a - 4)$ **18.** $(7 - t) + (3t + 4)$ **19.** $\left(\frac{x}{3} - 2\right) + \left(\frac{x}{2} + 4\right)$

20. $(1.4m - 6.2n) + (2.4m - 5.5n)$ **21.** $(3x + 2y + z) + (6x - 4y - 3z)$

Lesson 3.4

➤ Key Skills

Use adding the opposite to subtract expressions.

To simplify $(7x + 4y - 2z) - (6x - 5y + z)$, use this procedure.

$(7x + 4y - 2z) - (6x - 5y + z)$	Given
$7x + 4y - 2z - 6x + 5y - z$	Definition of Subtraction
$7x - 6x + 4y + 5y - 2z - z$	Rearrange terms.
$x + 9y - 3z$	Combine like terms.

➤ Exercises

Simplify.

22. $3x - 5x$ **23.** $7y - (7 - 5y)$ **24.** $(8m - 4) - (6m - 3)$

25. $(6d + 3) - (4d - 7) + (3d - 5)$ **26.** $(4a - 3b - c) - (6a + 5b - 4c)$

Lesson 3.5

➤ Key Skills

Solve algebraic equations that contain addition and subtraction.

Solve $x + 15 = 11$.

$$x + 15 = 11$$
$$x + 15 - 15 = 11 - 15$$
$$x = -4$$

Check: $-4 + 15 = 11$ True

Solve $-8 = y - 14$.

$$-8 = y - 14$$
$$-8 + 14 = y - 14 + 14$$
$$6 = y$$

Check: $-8 = 6 - 14$ True

➤ Exercises

Solve.

27. $w + 16 = 25$ **28.** $r + 26 = 16$ **29.** $t + 7 = -5$ **30.** $a + 1.5 = 3.6$

31. $m + \frac{1}{2} = \frac{5}{6}$ **32.** $y - 13 = 12$ **33.** $24 = x - 19$ **34.** $-6 = g - 17$

35. $h - \frac{1}{6} = \frac{2}{3}$ **36.** $7k - (6k + 5) = 7$ **37.** $4 - (2 - 3z) = 6z - (4z + 3)$

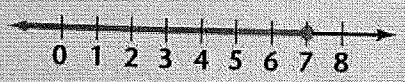
Lesson 3.6

➤ *Key Skills*

Solve inequalities, and show the solution on the number line.

For inequalities with addition and subtraction, solve as you would solve an equation. Then draw the solution on the number line.

$$\begin{aligned} 5t - 6 &\leq 4t + 1 \\ 5t - 4t - 6 &\leq 4t - 4t + 1 \\ t - 6 &\leq 1 \\ t - 6 + 6 &\leq 1 + 6 \\ t &\leq 7 \end{aligned}$$



➤ *Exercises*

Solve each inequality, and show the solution on a number line.

38. $x + 5 > 10$ **39.** $n - 15 \leq -3$ **40.** $y + 0.09 < 3.09$ **41.** $d - \frac{2}{3} \geq \frac{3}{9}$

Applications

42. Marsha is stocking the art supply cabinet at school. The paint brushes she needs to buy cost \$1.75 each, and the paint she needs costs \$2.45 per jar. Write an expression to show how much she will spend if she buys b paint brushes and j jars of paint.

43. Finance Lon's checking account is overdrawn by \$30. How much does he need to deposit so that he has a balance of \$150?

44. Toby bought a car for \$9299. He paid \$1500 as a down payment. How much money did he have to borrow to pay for the rest of the car?

45. Hobbies Rita has \$15 to spend on new baseball cards. She decides to buy a card that costs \$3. What is the most she can spend on other baseball cards?

Geometry The formula for the perimeter, P, of a triangle with sides of length a, b, and c is $P = a + b + c$.

46. Use the formula to find P when $a = 3.5$, $b = 4.7$, and $c = 5.9$.

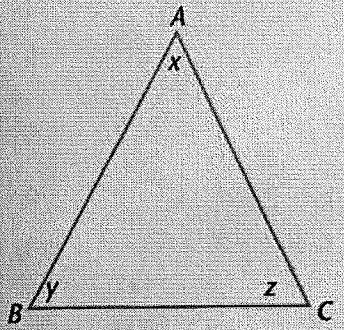
47. Solve this formula for b.

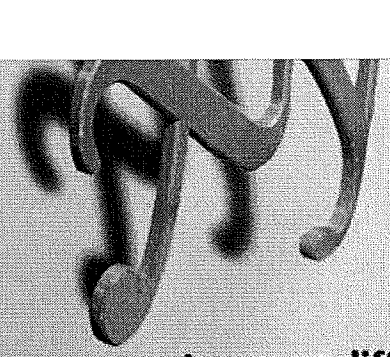
48. Use the formula to find b when $P = 13.5$, $a = 4.5$, and $c = 4.5$.

49. Geometry Write a formula for the sum of the angles in triangle ABC.

50. Solve the formula for z.

51. Find z when $x = 55$ and $y = 60$.





1. What are the opposites of 3, -5, and 0?
2. Find the absolute values of -27, 82, and 0.
3. Draw algebra tiles to represent $3 + (-5)$, and find the resulting sum.

Find each sum or difference.

4. $-7 + (-5)$
5. $8 - (-10)$
6. $18 + (-65)$
7. $-34 + 34$
8. $-16 - (-58) - 8$
9. $42 + (-78) + |-9|$
10. Kylie had 13 tapes. Then she bought 6 tapes, gave 4 away, and bought 3 more. How many tapes does she have now?

Simplify by performing the indicated operations.

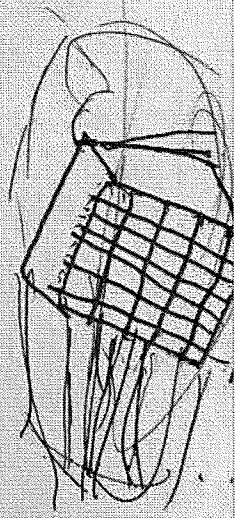
11. $(8n - 2) + (6n + 4)$
12. $5t - (9t - 6)$
13. $(8 - 9z) - (7z + 15)$

There are 5 boxes of books and 5 additional books in the book storage room.

14. If Mr. Weaver puts 2 boxes of books and 2 additional books in the book room, how many boxes and additional books are there now?
15. If Mrs. Thompson *then* removes 3 boxes of books and 1 additional book, how many boxes and additional books are left in the room?

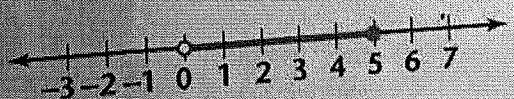
Solve.

16. $c + 18 = 10$
17. $t - 36 = 19$
18. $8 + y = -14$
19. $34 = h + 4$
20. $w + \frac{2}{5} = \frac{7}{10}$
21. $4x - (2x + 2) = 3 + x$
22. Complementary angles are pairs of angles whose measures total 90°. Find the measure of an angle complementary to an angle with a measure of 48°.
23. The relationship between total cost of an item, I, the cost without sales tax, C, and the amount of sales tax, T, is given by the formula $I = C + T$. Write a formula for C in terms of I and T.
24. Using the formula $I = C + T$, find C when $I = \$25.19$ and $T = \$1.20$.



Solve each inequality.

25. $x + 6 \geq 4$
26. $y - 2.3 < 1.4$
27. $t + \frac{1}{2} \geq 2$
28. Show the solution to $x - 8 \geq -4$ on a number line.
29. Write an inequality that describes the points on the number line.



30. There is room for 40 people in an aerobics class. There are 25 people signed up for the class. Write an inequality to describe the number of other people that can still sign up for the class.