

2-10 Practice-WB p. 75

Change Expressed as a Percent

Form G

Tell whether each percent change is an increase or decrease. Then find the percent change. Round to the nearest percent.

1. Original amount: 10
New amount: 12

2. Original amount: 72
New amount: 67

3. Original amount: 36
New amount: 68

4. Original amount: 23
New amount: 25

5. Original amount: 83
New amount: 41

6. Original amount: 19
New amount: 30

7. Original amount: 38
New amount: 45

8. Original amount: 16
New amount: 11

9. Original amount: 177
New amount: 151

10. The price of the truck was advertised as \$19,900. After talking with the salesperson, Jack agreed to pay \$18,200 for the truck. What is the percent decrease to the nearest percent?

11. The Ragnier's purchased a house for \$357,000. They sold their home for \$475,000. What was the percent increase to the nearest percent?

12. The original price for a gallon of milk is \$4.19. The sale price this week for a gallon of milk is \$2.99. What is the percent decrease to the nearest percent?

Find the percent error in each estimation. Round to the nearest percent.

13. You estimate that a building is 20 m tall. It is actually 23 m tall.

14. You estimate the salesman is 45 years old. He is actually 38 years old.

15. You estimate the volume of the storage room is 800 ft^3 . The room's volume is actually 810 ft^3 .

Practice-WB p. 19

Form G

Adding and Subtracting Real Numbers**1-5****Use a number line to find each sum.**

1. $4 + 8$

2. $-7 + 8$

3. $9 + (-4)$

4. $-6 + (-2)$

5. $-6 + 3$

6. $5 + (-10)$

7. $-7 + (-7)$

8. $9 + (-9)$

9. $-8 + 0$

Find each sum.

10. $22 + (-14)$

11. $-36 + (-13)$

12. $-15 + 17$

13. $45 + 77$

14. $19 + (-30)$

15. $-18 + (-18)$

16. $-1.5 + 6.1$

17. $-2.2 + (-16.7)$

18. $5.3 + (-7.4)$

19. $\frac{1}{9} + \left(-\frac{5}{9}\right)$

20. $\frac{3}{4} + \left(\frac{3}{8}\right)$

21. $\frac{1}{5} + \frac{7}{10}$

22. Writing Explain how you would use a number line to find $6 + (-8)$.**23. Open-Ended** Write an addition equation with a positive addend and a negative addend and a resulting sum of -8 .**24.** The Bears football team lost 7 yards and then gained 12 yards. What is the result of the two plays?

1-5 Practice (continued)

Adding and Subtracting Real Numbers

Form G

Find each difference.

25. $7 - 14$

26. $-8 - 12$

27. $-5 - (-16)$

28. $33 - (-14)$

29. $62 - 71$

30. $-25 - (-25)$

31. $1.7 - (-3.8)$

32. $-4.5 - 5.8$

33. $-3.7 - (-4.2)$

34. $\frac{7}{8} - \left(\frac{1}{8}\right)$

35. $\frac{2}{3} - \frac{1}{2}$

36. $\frac{4}{9} - \left(\frac{2}{3}\right)$

Evaluate each expression for $m = -4$, $n = 5$, and $p = 1.5$.

37. $m - p$

38. $-m + n - p$

39. $n + m - p$

40. At 4:00 a.m., the temperature was -9°F . At noon, the temperature was 18°F .
What was the change in temperature?

41. A teacher had $\$57.72$ in his checking account. He made a deposit of $\$209.54$.
Then he wrote a check for $\$72.00$ and another check for $\$27.50$. What is the
new balance in his checking account?

42. A scuba diver went down 20 feet below the surface of the water. Then she dove
down 3 more feet. Later, she rose 7 feet. What integer describes her depth?

43. **Reasoning** Without doing the calculations, determine whether
 $-47 - (-33)$ or $-47 + (-33)$ is greater. Explain your reasoning.

1-6

Practice-WB p.23-24

Form G

Multiplying and Dividing Real Numbers

Find each product. Simplify, if necessary.

1. $-5(-7)$

2. $8(-11)$

3. $9 \cdot 12$

4. $(-9)^2$

5. -3×12

6. $-5(-9)$

7. $-3(2.3)$

8. $(-0.6)^2$

9. $8(-2.4)$

10. $-\frac{3}{4} \cdot \frac{2}{9}$

11. $-\frac{2}{5} \left(-\frac{5}{8}\right)$

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

13. After hiking to the top of a mountain, Raul starts to descend at the rate of 350 feet per hour. What real number represents his vertical change after $1\frac{1}{2}$ hours?
14. A dolphin starts at the surface of the water. It dives down at a rate of 3 feet per second. If the water level is zero, what real number describes the dolphin's location after $3\frac{1}{2}$ seconds?

Simplify each expression.

15. $\sqrt{1600}$

16. $-\sqrt{625}$

17. $\pm\sqrt{10,000}$

18. $-\sqrt{0.81}$

19. $\pm\sqrt{1.44}$

20. $\sqrt{0.04}$

21. $\pm\sqrt{\frac{4}{9}}$

22. $-\sqrt{\frac{16}{49}}$

23. $\sqrt{\frac{100}{121}}$

1-6

Practice (continued)

Form G

Multiplying and Dividing Real Numbers

24. **Writing** Explain the differences among $\sqrt{25}$, $-\sqrt{25}$, and $\pm\sqrt{25}$.

25. **Reasoning** Can you name a real number that is represented by $\sqrt{-36}$? Explain.

Find each quotient. Simplify, if necessary.

26. $-51 \div 3$

27. $-250 \div (-25)$

28. $98 \div 2$

29. $84 \div (-4)$

30. $-93 \div (-3)$

31. $\frac{-105}{5}$

32. $14.4 \div (-3)$

33. $-1.7 \div (-10)$

34. $-8.1 \div 3$

35. $17 \div \frac{1}{3}$

36. $-\frac{3}{8} \div \left(-\frac{9}{10}\right)$

37. $-\frac{5}{6} \div \frac{1}{2}$

Evaluate each expression for $a = -\frac{1}{2}$, $b = \frac{3}{4}$, and $c = -6$.

38. $-ab$

39. $b \div c$

40. $\frac{c}{a}$

41. **Writing** Explain how you know that -5 and $-\frac{1}{5}$ are multiplicative inverses.

42. At 6:00 p.m., the temperature was 55°F . At 11:00 p.m. that same evening, the temperature was 40°F . What real number represents the average change in temperature per hour?

1-2

Practice-WB p.7-8

Form G

Order of Operations and Evaluating Expressions**Simplify each expression.**

1. 4^2

2. 5^3

3. 1^{16}

4. $\left(\frac{5}{6}\right)^2$

5. $(1 + 3)^2$

6. $(0.1)^3$

7. $5 + 3(2)$

8. $\left(\frac{16}{2}\right) - 4(5)$

9. $4^4(5) + 3(11)$

10. $17(2) - 4^2$

11. $\left(\frac{20}{5}\right)^3 - 10(3)^2$

12. $\left(\frac{27-12}{8-3}\right)^3$

13. $(4(5))^3$

14. $2^5 - 4^2 \div 2^2$

15. $\left(\frac{3(6)}{17-5}\right)^4$

Evaluate each expression for $s = 2$ and $t = 5$.

16. $s + 6$

17. $5 - t$

18. $11.5 + s^2$

19. $\frac{s^4}{4} - 17$

20. $3(t)^3 + 10$

21. $s^3 + t^2$

22. $-4(s)^2 + t^3 \div 5$

23. $\left(\frac{s+2}{5t^2}\right)^2$

24. $\left(\frac{3s(3)}{11-5(t)}\right)^2$

25. Every weekend, Morgan buys interesting clothes at her local thrift store and then resells them on an auction website. If she brings \$150.00 and spends s , write an expression for how much change she has. Evaluate your expression for $s = \$27.13$ and $s = \$55.14$.

1-7 Practice-WB p. 28

Form G

The Distributive Property

Use the Distributive Property to simplify each expression.

- | | | | |
|-----------------------|---|----------------------------|--|
| 1. $3(h - 5)$ | 2. $7(-5 + m)$ | 3. $(6 + 9v)6$ | 4. $(5n + 3)12$ |
| 5. $20(8 - a)$ | 6. $15(3y - 5)$ | 7. $21(2x + 4)$ | 8. $(7 + 6w)6$ |
| 9. $(14 - 9p)1.1$ | 10. $(2b - 10)3.2$ | 11. $\frac{1}{3}(3z + 12)$ | 12. $4\left(\frac{1}{2}t - 5\right)$ |
| 13. $(-5x - 14)(5.1)$ | 14. $1\left(-\frac{1}{2}r - \frac{5}{7}\right)$ | 15. $10(6.85j + 7.654)$ | 16. $\frac{2}{3}\left(\frac{2}{3}m - \frac{2}{3}\right)$ |

Write each fraction as a sum or difference.

- | | | | |
|-----------------------|-------------------------|------------------------|------------------------|
| 17. $\frac{3n+5}{7}$ | 18. $\frac{14-6x}{19}$ | 19. $\frac{3d+5}{6}$ | 20. $\frac{9p-6}{3}$ |
| 21. $\frac{18+8z}{6}$ | 22. $\frac{15n-42}{14}$ | 23. $\frac{56-28w}{8}$ | 24. $\frac{81f+63}{9}$ |

Simplify each expression.

- | | | | |
|------------------|----------------------|---------------------|---------------------|
| 25. $-(14 + x)$ | 26. $-(-8 - 6t)$ | 27. $-(6 + d)$ | 28. $-(-r + 1)$ |
| 29. $-(4m - 6n)$ | 30. $-(5.8a + 4.2b)$ | 31. $-(-x + y - 1)$ | 32. $-(f + 3g - 7)$ |

Use mental math to find each product.

- | | | | |
|--------------------|---------------------|---------------------|---------------------|
| 33. 3.2×3 | 34. 5×8.2 | 35. 149×2 | 36. 6×397 |
| 37. 4.2×5 | 38. 4×10.1 | 39. 8.25×4 | 40. 11×4.1 |

41. You buy 75 candy bars at a cost of \$0.49 each. What is the total cost of 75 candy bars? Use mental math.
42. The distance around a track is 400 m. If you take 14 laps around the track, what is the total distance you walk? Use mental math.
43. There are 32 classmates that are going to the fair. Each ticket costs \$19. What is the total amount the classmates spend for tickets? Use mental math.

2-1 Practice-WB p.39 - 40

Form G

Solving One-Step Equations

Solve each equation using addition or subtraction. Check your answer.

1. $8 = a - 2$

2. $x + 7 = 11$

3. $r - 2 = -6$

4. $-18 = m + 12$

5. $f + 10 = -10$

6. $-1 = n + 5$

Solve each equation using multiplication or division. Check your answer.

7. $-3p = -48$

8. $-98 = 7t$

9. $-4.4 = -4y$

10. $2.8c = 4.2$

11. $\frac{k}{6} = 8$

12. $16 = \frac{w}{8}$

13. $-9 = \frac{y}{-3}$

14. $\frac{h}{10} = \frac{-22}{5}$

Solve each equation. Check your answer.

15. $\frac{3}{5}n = 12$

16. $-4 = \frac{2}{3}b$

17. $\frac{5}{8}x = -15$

18. $\frac{1}{4}z = \frac{2}{5}$

19. Jeremy mowed several lawns to earn money for camp. After he paid \$17 for gas, he had \$75 leftover to pay towards camp. Write and solve an equation to find how much money Jeremy earned mowing lawns.

2-1 Practice (continued)

Solving One-Step Equations

Form G

Define a variable and write an equation for each situation. Then solve.

20. Susan's cell phone plan allows her to use 950 minutes per month with no additional charge. She has 188 minutes left for this month. How many minutes has she already used this month?
21. In the fifth year of operation, the profit of a company was 3 times the profit it earned in the first year of operation. If its profit was \$114,000 in the fifth year of operation, what was the profit in the first year?

Solve each equation. Check your answer.

22. $-9x = 48$

23. $-\frac{7}{8} = \frac{2}{3} + n$

24. $a + 1\frac{1}{4} = 2\frac{7}{10}$

25. $-7t = 5.6$

26. $2.3 = -7.9 + y$

27. $\frac{5}{3}p = \frac{8}{3}$

28. $\frac{g}{8} = -\frac{3}{4}$

29. $\frac{m}{8} = 8\frac{1}{3}$

□

30. A community center is serving a free meal to senior citizens. The center plans to feed 700 people in 4 hours.
- a. Write and solve an equation to find the average number of people the center is planning to feed each hour.
- b. During the first hour and a half, the center fed 270 people. Write and solve an equation to find the number of people that remain to be fed.

2-2 Practice-WB p.43-44

Solving Two-Step Equations

Form G

Solve each equation. Check your answer.

1. $6 + 3b = -18$

2. $-3 + 5x = 12$

3. $7n + 12 = -23$

4. $\frac{t}{6} - 3 = 8$

5. $-12 = 8 + \frac{f}{2}$

6. $13 = 8 - 5d$

7. $\frac{k}{4} + 6 = -2$

8. $-22 = -8 + 7y$

9. $16 - 3p = 34$

10. $15 + \frac{q}{6} = -21$

11. $-19 + \frac{c}{3} = 8$

12. $-18 - 11r = 26$

13. $-9 + \frac{y}{-3} = -6$

14. $14 + \frac{m}{10} = 24$

Define a variable and write an equation for each situation. Then solve.

15. Chip earns a base salary of \$500 per month as a salesman. In addition to the salary, he earns \$90 per product that he sells. If his goal is to earn \$5000 per month, how many products does he need to sell?
16. A pizza shop charges \$9 for a large cheese pizza. Additional toppings cost \$1.25 per topping. Heather paid \$15.25 for her large pizza. How many toppings did she order?

2-2

Practice (continued)

Form G

Solving Two-Step Equations

Solve each equation. Check your answer.

17. $\frac{z+6}{3} = 8$

18. $\frac{n-7}{2} = -11$

19. $\frac{j+18}{-4} = 8$

20. $\frac{1}{3}a - 6 = -15$

21. $\frac{1}{4} = \frac{1}{4}h + 4$

22. $6.42 - 10d = 2.5$

23. The selling price of a television in a retail store is \$66 less than 3 times the wholesale price. If the selling price of a television is \$899, write and solve an equation to find the wholesale price of the television.
24. The fare for a taxicab is \$5 per trip plus \$0.50 per mile. The fare for the trip from the airport to the convention center was \$11.50. Write and solve an equation to find how many miles the trip is from the airport to the convention center.
25. An online movie club offers a membership for \$5 per month. Members can rent movies for \$1.50 per rental. A member was billed \$15.50 one month. Write and solve an equation to find how many movies the member rented.
26. **Writing** Describe, using words, how to solve the equation $6 - 4x = 18$. List any properties utilized in the solution.

27. a. Solve $-8 = \frac{x+2}{4}$

- b. Write the right side of the equation in part (a) as the sum of two fractions. Solve the equation.
- c. Did you find the equation in part (a) or the rewritten equation easier to solve? Why?

2-3 Practice-WB p.47

Form G

Solving Multi-Step Equations**Solve each equation. Check your answer.**

1. $19 - h - h = -13$

2. $14 + 6a - 8 = 18$

3. $25 = 7 + 3k - 12$

4. $5n - 16 - 8n = -10$

5. $-34 = v + 42 - 5v$

6. $x - 1 + 5x = 23$

7. $42j + 18 - 19j = -28$

8. $-49 = 6c - 13 - 4c$

9. $-28 + 15 - 22z = 31$

Write an equation to model each situation. Then solve the equation.

10. General admission tickets to the fair cost \$3.50 per person. Ride passes cost an additional \$5.50 per person. Parking costs \$6 for the family. The total costs for ride passes and parking was \$51. How many people in the family attended the fair?

11. Five times a number decreased by 18 minus 4 times the same number is -36 .
What is the number?

Solve each equation. Check your answer.

12. $6(3m + 5) = 66$

13. $3(4y - 8) = 12$

14. $-5(x - 3) = -25$

15. $42 = 3(2 - 3h)$

16. $-10 = 5(2w - 4)$

17. $3p - 4 = 31$

18. $-3 = -3(2t - 1)$

19. $x - 2(x + 10) = 12$

20. $-15 = 5(3q - 10) - 5q$

21. Angela ate at the same restaurant four times. Each time she ordered a salad and left a \$5 tip. She spent a total of \$54. Write and solve an equation to find the cost of each salad.

3-1

Practice-WB p. 79

Form G

Inequalities and Their Graphs

Write an inequality that represents each verbal expression.

- v is greater 10.
- b is less than or equal to -1 .
- the product of g and 2 is less than or equal to 6.
- 2 more than k is greater than -3 .

Determine whether each number is a solution of the given inequality.

- | | | | |
|---------------------------|---------|---------|----------|
| 5. $3y + 5 < 20$ | a. 2 | b. 0 | c. 5 |
| 6. $2m - 4 \geq 10$ | a. -1 | b. 8 | c. 10 |
| 7. $4x + 3 > -9$ | a. 0 | b. -2 | c. -4 |
| 8. $\frac{3-n}{2} \leq 4$ | a. 3 | b. 2 | c. -10 |

Graph each inequality.

- | | |
|-----------------|------------------------|
| 9. $y < -2$ | 10. $t \geq 4$ |
| 11. $z > -3$ | 12. $v \leq 15$ |
| 13. $-3 \geq f$ | 14. $-\frac{5}{3} < c$ |

3-4

Practice-WB p. 91

Form G

Solving Multi-Step Inequalities

Solve each inequality. Check your solutions.

1. $3f + 9 < 21$

2. $4n - 3 \geq 105$

3. $33y - 3 \leq 8$

4. $2 + 2p > -17$

5. $12 > 60 - 6r$

6. $-5 \leq 11 + 4j$

Solve each inequality.

7. $2(k + 4) - 3k \leq 14$

8. $3(4c - 5) - 2c > 0$

9. $15(j - 3) + 3j < 45$

10. $22 \geq 5(2y + 3) - 3y$

11. $-53 > -3(3z + 3) + 3z$

12. $20(d - 4) + 4d \leq 8$

13. $-x + 2 < 3x - 6$

14. $3v - 12 > 5v + 10$

Solve each inequality, if possible. If the inequality has no solution, write *no solution*. If the solutions are all real numbers, write *all real numbers*.

15. $6w + 5 > 2(3w + 3)$

16. $-5r + 15 \geq -5(r - 2)$

17. $-2(6 + s) < -16 + 2s$

18. $9 - 2x < 7 + 2(x - 3)$

19. $2(n - 3) \leq -13 + 2n$

20. $-3(w + 3) < 9 - 3w$