2-7 Exercises, pp. 94–95

1. 12
2. 11
3. 20
4. 5
5. 8
6. 26
7. 19
8. 16
9. 22
10. 14
11. 5
12. 14
13. 11
14. 16
15. 24
16. 320
17. 12
18. 30
19. 41
20. 70
21. 10
22. 9
23. 22
24. 16
25. 24
26. 26
27. 13
28. Possible answer: $4ab \div 3$
29. $2 \cdot 5 \cdot c \cdot c \cdot c \cdot d \cdot d$
30. 420; 420 seconds
31. \$4.50
32. 2,600; 2,600 watts
33. 86°F
34. **a.** 100°C
b. 212°F
35. A variable is a letter that represents a number, so x is the variable. $72x$ is an expression that contains a variable.

2-7 Exercises, pp. 94–95 (continued)

36. Possible answer: Using different values in place of a variable will cause the value of the expression to vary. If $x = 4$, $3x + 5 = 17$. If $x = 8$, $3x + 5 = 29$.
37. 7
38. 35
39. $3^2 \cdot 11$
40. $2^3 \cdot 3$
41. $2^3 \cdot 7$
42. $2^4 \cdot 5$
43. C
44. G

2-8 Exercises, pp. 98–99

1. $7p$
2. $n - 3$
3. $3(n + 5)$
4. $\$5 \div n$ or $\frac{5}{n}$
5. $46 + 21m$
6. $5 + x$
7. $y - 2$
8. $n \div 8$
9. $9n$
10. $3y - 10$
11. $45 \div v$
12. $5 + 2t$
13. $m + 6n$
14. $\frac{23}{u} - t$
15. $6k - 14$
16. $2(y + 5)$
17. $100 \div (6 + w)$
18. $35(r - 45)$
19. Possible answer: h plus 3
20. Possible answer: 90 divided by y
21. Possible answer: s minus 405
22. Possible answer: 5 times the quantity a minus 8
23. Possible answer: the difference between 4 times p and 10
24. Possible answer: the sum of r and 1 divided by 14
25. **a.** $17n$
b. $17 \cdot 24d$
26. $65{,}000 + 2b$
27. $8m$
28. **a.** $15y + 12$
b. 30 g

2-8 Exercises, pp. 98–99 (continued)

29. Possible answer: Which variable represents how many football cards Joe has?
30. Possible answers: You could use subtraction to find the difference between two numbers, or division to find how many times a number can fit into another number. Another explanation could be that by using subtraction, you are finding the difference in values, while with division you are finding the relative value of one in terms of the other.
31. $n \div 1.363$
32. 25
33. 93
34. 250
35. Possible answer: 8^4
36. 612,000
37. 43,800,000
38. 59,000,000
39. B

2-9 Exercises, pp. 102–103

1. $6b$ and $\frac{b}{2}$, $5x^2$ and x^2
2. $12a^2$ and $4a^2$, $4x^3$ and $3.5x^3$, b and $\frac{5}{6}b$
3. $8x$
4. $5a^2 + 16$
5. There are no like terms.
6. $10n + 12b$
7. b^6 and $3b^6$, $2b$ and b
8. $2n$ and $\frac{n}{4}$, 6 and 7
9. m and $2m$, 3^3 and 2
10. 6^3 and 6^2, y^3 and $5y^3$
11. $8a + 2b$
12. $3a + 3b + 2c$
13. $12b + 10$
14. $2x + 4y + 4$
15. $18 + 2d^3 + 4d$
16. $3q^2 + 2q$
17. $11a + 4n$
18. $9x$
19. $27y$
20. $4c^2 + 7c$
21. $2d^2 + d$
22. $6f^2 + 2f$
23. No like terms
24. $15p + 9q + 9$
25. No like terms
26. $3a^2 + 3b + 2c$
27. Possible answer: $8x + 2 + 8x + 3$
28. Possible answer: $4p + 3p + 2c$
29. Expression $4n + 5n + 6n = 15n$; 15, 30, 45, 60, 75
30. $8h + 8(2h)$; $24h$
31. **a.** $21.5d + 23d + 15.5d + 19d$; $79d$
    b. \$750.50
    c. The amount Brad earned in June

2-9 Exercises, pp. 102–103 (continued)

32. $23x^2$; $23x + 23x^2 + 6y^2 - 18x + y^2 - 23x^2$
33. Possible answer: What is the difference between the cost of buying both shirts and jeans from one store and the cost of buying them from the other store?
34. Add the coefficients of the x terms. Then combine the numbers: $7x - 12$.
35. Possible answer: $(x + 2) + (3x + 1) + (x + 2) + (3x + 1) = 8x + 6$
36. 7^3
37. 3^5
38. 6^2
39. 5^3
40. 9
41. 9
42. 12
43. 44
44. D

2-10 Exercises, pp. 106–107

1. No
2. No
3. Yes
4. No
5. 88 cards
6. \$34
7. No
8. No
9. No
10. Yes
11. No
12. Yes
13. No
14. No
15. 53 video games
16. \$175
17. No
18. Yes
19. Yes
20. Yes
21. Yes
22. No
23. No
24. Yes
25. No
26. Yes
27. Possible answer: $6 - j = 3$
28. $10{,}500 + d = 14{,}264$
29. 318 mi/h
30. 46 inches
31. Possible answer: Solve $t + 1 = 60$ to find the mean temperature of the Earth in 1861.
32. About 9.3×10^5
33. 4
34. 61
35. 142

2-10 Exercises, pp. 106–107 (continued)

36. 5
37. $2^3 \cdot 7$
38. $2^3 \cdot 3^2$
39. $2^2 \cdot 3^3$
40. $2 \cdot 3^2 \cdot 29$
41. C

2-11 Exercises, pp. 112–113

1. $r = 176$
2. $v = 168$
3. $x = 88$
4. $d = 9$
5. $f = 9$
6. $m = 971$
7. 14 yd
8. $n = 53$
9. $t = 82$
10. $b = 67$
11. $m = 74$
12. $x = 28$
13. $w = 43$
14. $s = 45$
15. $x = 35$
16. $t = 52$
17. $q = 99$
18. 38 mi
19. 2 books
20. $p = 10$
21. $n = 81$
22. $y = 575$
23. $a = 45$
24. $c = 149$
25. $f = 1{,}000$
26. $h = 141$
27. $s = 159$
28. $x = 839$
29. $z = 766$
30. $\$65 + a = \$315$; $a = \$250$
31. $34 + f = 48$; $f = 14$
32. Possible answer: $55 + b = 103$, $b = 48$ lb
33. $\$195 = \$156 + m$; $m = \$39$
34. 24 was added to 26 instead of subtracted from 26; $x = 2$

2-11 Exercises, pp. 112–113 (continued)

35. Possible answer: If the equation involves addition, you subtract to solve it; if the equation involves subtraction, you add to solve it.
36. $4 + x = -7$; $x = -11$ yd; Loss of 11 yd.
37. 262,144
38. 729
39. 1,024
40. 27
41. 14,700
42. 365,000
43. C
44. H

2-12 Exercises, pp. 116–117

1. $s = 847$
2. $b = 100$
3. $y = 40$
4. $x = 9$
5. $c = 32$
6. $x = 1$
7. 9 people
8. $s = 48$
9. $k = 1{,}296$
10. $z = 65$
11. $c = 175$
12. $w = 242$
13. $n = 306$
14. $x = 5$
15. $p = 21$
16. $u = 37$
17. $a = 2$
18. $q = 12$
19. $d = 45$
20. 27 people
21. $g = 27$
22. $j = 50$
23. $r = 12$
24. $x = 7$
25. $b = 62$
26. $p = 90$
27. $c = 716$
28. $a = 36$
29. $d = 42$
30. $h = 1{,}660$
31. $d \div 4 = 3$; $d = 12$
32. $5b = 250$; $b = 50$
33. $9x = \$180$; $x = \$20$
34. 5 pies
35. 12 toys
36. $45 = x \div 62$; $x = 2{,}790$ mi
37. \$13,300

2-12 Exercises, pp. 116–117 (continued)

38. Possible answer: The student made an error when dividing 102 by 16. The correct answer should be $x = 6.375$.
39. Possible answer: In a multiplication equation, identify the number being multiplied by the variable. Then divide both sides of the equation by this number and simplify. In a division equation, identify the number by which the variable is being divided. Then multiply both sides of the equation by this number and simplify.
40. $5s \div 3 = 8{,}690{,}000$; $s = 5{,}214{,}000$
41. 10
42. 35
43. $7x^2 + 6$
44. $6n + 62m - n^4$
45. D
46. H