CHAPTER 6

Cumulative Practice

for Chapters 1–6

Evaluate the expression. (1.1–1.3)

1. $x + 8$ when $x = -1$

2. $3x - 2$ when $x = 7$

3. $x(4 + x)$ when $x = 5$

4. $(x - 5)^2$ when $x = 1$

5. $2\left(\frac{x + 8}{x}\right)$ when $x = 4$

6. $x^3 - 3x + 1$ when $x = 2$

Evaluate the expression. (2.2 and 2.3)

7. $2 - (-6) + (-14)$

8. $3.1 + (-3.3) - 1.8$

9. $20 - |-5.5|$

Find the sum or the difference of the matrices. (2.4)

10. $\begin{bmatrix} 3 & 2 \\ 8 & -2 \end{bmatrix} + \begin{bmatrix} -4 & -2 \\ -1 & 0 \end{bmatrix}$

11. $\begin{bmatrix} -2 & 7 & -3 \\ 5 & 4 & 1 \end{bmatrix} - \begin{bmatrix} -8 & 0 & 3 \\ 10 & 5 & -4 \end{bmatrix}$

Simplify the expression. (2.5 and 2.6)

12. $4(y - 4)$

13. $3(6 + x)$

14. $2y(5 + y)$

15. $-5t(3 - t)$

16. $20x - 17x$

17. $4b + 7 + 7b$

18. $5x^2 - 3x^2$

19. $4.2y + 1.1y$

Solve the equation. (3.1–3.4, 3.6)

20. $x + 4 = -1$

21. $-3 = n - 15$

22. $5b = -25$

23. $\frac{x}{4} = 6$

24. $3x + 4 = 13$

25. $6 + \frac{2}{3}x = 14$

26. $5(x - 2) = 15$

27. $14x + 50 = 75$

28. $x + 8 = 3(x - 4)$

29. $-(x - 7) = \frac{1}{2}x + 1$

30. $3x - 15.6 = 75.3$

31. $5.5x + 2.1 = 7.6$

Rewrite the equation so that *y* is a function of *x*. (3.7)

32. $x = y + 3$

33. $4x - 5y = 13$

34. $3(y - x) = 10 - 4x$

Find the unit rate. (3.8)

35. \$1 for two cans of dog food

36. \$440 for working 40 hours

Plot and label the ordered pairs in a coordinate plane. (4.1)

37. $A(2, 3)$, $B(2, -3)$, $C(-1, 1)$

38. $A(0, -2)$, $B(-3, -3)$, $C(2, 0)$

39. $A(2, 4)$, $B(3, 0)$, $C(-1, -4)$

40. $A(1, -4)$, $B(-2, 4)$, $C(0, -1)$

Plot the points and find the slope of the line passing through the points. (4.4)

41. $(3, 1)$, $(-3, -1)$

42. $(2, 2)$, $(-5, 2)$

43. $(-4, 1)$, $(-4, -2)$

44. $(-2, 0)$, $(0, -4)$

Graph the equation. (4.2, 4.3, and 4.6)

45. $x - y = 4$

46. $2x - y + 1 = 0$

47. $x + 2y - 4 = 0$

48. $x + 3y = 7x$

49. $x + 4y - 1 = 0$

50. $y - 2.5 = 0$

Write an equation of the line in slope-intercept form. (5.1)

51. The slope is 1; the *y*-intercept is -3.

52. The slope is -2; the *y*-intercept is 5.

Write an equation of the line that passes through the point and has the given slope. Write the equation in slope-intercept form. (5.2)

53. $(-1, 1)$, $m = 2$ **54.** $(3, -1)$, $m = \frac{1}{4}$ **55.** $(-3, 6)$, $m = -5$

Write an equation in slope-intercept form of the line that passes through the points. (5.3)

56. $(-1, -7)$, $(-2, 1)$ **57.** $(0, 3)$, $(2, 4)$ **58.** $(4.2, -3.6)$, $(7.0, 3.4)$

Solve the inequality. (6.1–6.4)

59. $6 > 3x$ **60.** $-6 \leq x + 12$ **61.** $-\frac{x}{6} \geq 8$

62. $-4 - 5x \leq 31$ **63.** $-4x + 3 > -21$ **64.** $-x + 2 < 2(x - 5)$

65. $-3.2 + x \geq 6.9$ **66.** $-4 \leq -2x \leq 10$ **67.** $5 < 4x - 11 < 13$

68. $-2 < x - 7 \leq 15$ **69.** $|x - 8| > 10$ **70.** $|2x + 5| \leq 7$

Find the mean, the median, and the mode of the collection of numbers. (6.6)

71. 10, 5, 25, 5, 10, 15, 20, 50, 5, 15 **72.** 8, 7, 5, 2, 3, 5, 2, 3, 2, 7, 1, 2

73. **PURCHASES** You have \$25. You buy two CDs that cost \$9.99 each, tax included. Do you have enough money left over to buy a cassette that costs \$5.95? Explain. (1.4)

74. **PHOTO COSTS** A photography studio charges \$65 for a basic graduation package of photos, plus \$3 for each additional wallet photo. Use the equation $65 + 3n = C$, where n represents the number of additional wallet photos and C represents the total cost, to make an input-output table of the costs for ordering 0 through 6 additional wallet photos. (1.7)

75. **VELOCITY** Recall that the speed of an object is the absolute value of its velocity. A hot-air balloon drops at a rate of 100 feet per minute. What are its velocity and speed? (2.1)

76. **TEMPERATURES** On February 21, 1918, the temperature in Granville, North Dakota, rose from $-33°$F to $50°$F. By how many degrees did the temperature rise? (3.1)

77. **SALES TAX** You are shopping for a pen. The sales tax is 6%. You have a total of \$10.50 to spend. What is your price limit for the pen? (3.6)

AMUSEMENT PARKS In Exercises 78–80, use the table that shows the number of dollars (in millions) spent at amusement parks in the United States from 1991 through 1995. (4.1 and 5.4)

Years since 1991	0	1	2	3	4
Dollars (in millions)	4820	5366	5663	5905	6376

▶ Source: U.S. Bureau of the Census

78. Draw a scatter plot of the data.

79. Write a linear model for the amount spent at amusement parks.

80. Use the linear model to estimate the amount spent in 2005.