CHAPTER TEST

Evaluate the expression.

1. $7 + 3^2 \cdot 2$
2. $(5^2 + 17) \div 7$
3. $(24 - 11) - (3 + 2) \div 4$
4. $\frac{x}{5}$ when $x = 30$
5. n^3 when $n = 20$
6. $15 - t$ when $t = 11$
7. $12 + 4x$ when $x = 1\frac{1}{2}$
8. $3z^2 - 7$ when $z = 6$
9. $2(4n + 5)$ when $n = 2$

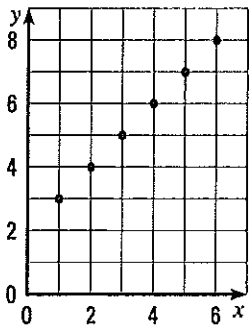
Write an expression, an equation, or an inequality.

10. The sum of 19 and the cube of a number x
11. The product of 3 and a number y is no more than 21.
12. Twice the difference of a number z and 12 is equal to 10.

Check whether the given number is a solution of the equation or inequality.

13. $2 + 3x = 10; 2$
14. $8 + 3b > 15; 2$
15. $11y - 5 \leq 30; 3$

16. Refer to the graph.



   a. *Explain* why the graph represents a function.
   b. Identify the domain and the range.
   c. Write a rule for the function.

17. **FOOD PREPARATION** You buy tomatoes at \$1.29 per pound and peppers at \$3.99 per pound to make salsa. Write an expression for the total cost of the ingredients. Then find the total cost of 5 pounds of tomatoes and 2 pounds of peppers.

18. **CAR EXPENSES** A family determined the average cost of maintaining and operating the family car to be about \$.30 per mile. On one trip, the family drove at an average rate of 50 miles per hour for a total of 6.5 hours. On a second trip, they drove at an average rate of 55 miles per hour for a total of 6 hours. Which trip cost more? How much more?

19. **SHOE SIZES** A man's size 6 shoe is the same size as a woman's size $7\frac{1}{2}$. The table shows other corresponding sizes of men's and women's shoes.

Men's size, x	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9
Women's size, y	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10	$10\frac{1}{2}$

   a. Using the data in the table, write a rule for women's shoe size as a function of men's shoe size. Identify the domain and the range.
   b. Graph the function.

CHAPTER TEST

Tell whether the number is a real number, a rational number, an irrational number, an integer, or a whole number.

1. $-\frac{1}{4}$
2. $\sqrt{90}$
3. $-\sqrt{144}$
4. 8.95

Order the numbers in the list from least to greatest.

5. $-\frac{5}{3}, -2, 3, \frac{1}{2}, -1.07$
6. $\sqrt{15}, -4.3, 4.2, 0, -\sqrt{25}$

Find the sum, difference, product, or quotient.

7. $-5 + 2$
8. $1.3 + (-10.4)$
9. $-\frac{1}{3} + \frac{1}{6}$
10. $-\frac{2}{7} - \frac{5}{14}$
11. $-41 - 32$
12. $7.2 - (-11.6)$
13. $-11(-7)$
14. $-4.5(20)(2)$
15. $-\frac{1}{5}(-20)(-5)$
16. $-36 \div (-6)$
17. $-\frac{3}{5} \div 12$
18. $5 \div \left(-\frac{10}{11}\right)$

Evaluate the expression when $x = -6$ and $y = -10$.

19. $-x$
20. $|y|$
21. $8 - (x - y)$
22. $-4x + y$

Simplify the expression.

23. $-9(y - 7)$
24. $8(x - 4) - 10x$
25. $\frac{-7w - 21}{7}$
26. $\frac{-16v + 8}{-4}$

In Exercises 27 and 28, rewrite the conditional statement in if-then form. Then tell whether the statement is *true* or *false*. If it is false, give a counterexample.

27. No rational numbers are integers.
28. All irrational numbers are real numbers.

29. **MUSIC** The revenue from sales of digital pianos in the United States was \$152.4 million in 2001 and \$149.0 million in 2002. Find the change in revenue from 2001 to 2002.

30. **ELEVATORS** An elevator moves at a rate of −5.8 feet per second from a height of 300 feet above the ground. It takes 3 seconds for the elevator to make its first stop. How many feet above the ground is the elevator now?

31. **SUMMER JOBS** You plan to work a total of 25 hours per week at two summer jobs. You will earn \$8.75 per hour working at a cafe and \$10.50 per hour working at an auto shop. Write an equation that gives your weekly pay p (in dollars) as a function of the time t (in hours) spent working at the cafe. Then find your weekly pay if you work 10 hours at the cafe.

32. **TEMPERATURES** The low temperatures for Montreal, Quebec, in Canada on February 12 for each year during the period 2000–2004 are −6.7°F, −4.2°F, 4.1°F, −3.6°F, and 0.3°F. Find the mean of the temperatures.

CHAPTER TEST

Solve the equation. Check your solution.

1. $5 + r = -19$
2. $z - 8 = -12$
3. $-11x = -77$
4. $\frac{a}{9} = 6$
5. $15q - 17 = 13$
6. $3y + 2 = 26$
7. $\frac{b}{4} + 5 = 14$
8. $\frac{m}{10} - 6 = 20$
9. $6j + 5j = 33$
10. $4k - 9k = 10$
11. $14c - 8c + 7 = 37$
12. $4w - 21 + 5w = 51$
13. $-19.4 - 15d + 22d = 4.4$
14. $-12h + 39 = -4h - 17$
15. $-5.7v - 44.2 = -8.3v$
16. $-6.5t + 15 = -9.7t + 43.8$
17. $3(3n + 4) = 54 + 6n$
18. $\frac{1}{3}(24p - 66) = 3p + 43$

Solve the proportion. Check your solution.

19. $\frac{3}{4} = \frac{z}{16}$
20. $\frac{72}{45} = \frac{8}{w}$
21. $\frac{k}{9} = \frac{63}{81}$
22. $\frac{-5n}{4} = \frac{15}{2}$
23. $\frac{34}{6} = \frac{2x + 1}{3}$
24. $\frac{-4a - 1}{-10a} = \frac{3}{8}$

Use the percent equation to answer the question.

25. What percent of 84 is 21?
26. What percent of 124 is 93?
27. What number is 15% of 64?
28. What number is 44% of 24.5?
29. 90 is what percent of 250?
30. 79.8 is what percent of 95?

Write the equation so that y is a function of x.

31. $8x + y = 14$
32. $-9x + 3y = 18$
33. $4x = -2y + 26$

34. **MOVIES** The ticket prices at a movie theater are shown in the table. A family purchases tickets for 2 adults and 3 children, and the family purchases 3 boxes of popcorn of the same size. The family spent a total of \$40.25. How much did each box of popcorn cost?

Ticket	Price
Adults	\$8.50
Children	\$5.50

35. **ICE SKATING** To become a member of an ice skating rink, you have to pay a \$30 membership fee. The cost of admission to the rink is \$5 for members and \$7 for nonmembers. After how many visits to the rink is the total cost for members, including the membership fee, the same as the total cost for nonmembers?

36. **SCALE DRAWING** You are making a scale drawing of your classroom using the scale 1 inch : 3 feet. The floor of your classroom is a rectangle with a length of 21 feet and a width of 18 feet. What should the length and width of the floor in your drawing be?

37. **SURVEYS** A survey asks high school seniors whether they would be willing to pay \$5 for their yearbook. Out of the 225 seniors surveyed, 198 said "yes." What percent of the seniors said "yes"?