

Practice B

For use with pages 24–30

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

1. $2x + 3 = 17$; 7

2. $20 = 2x - 8$; 6

3. $4 + x^2 = 10$; 3

4. $x^2 - 19 = 30$; 7

5. $3x - 5 = x - 1$; 2

6. $17 - 2a^3 = 11$; 1

7. $5a - 3 = 3 + 2a$; 2

8. $y + 3y = 2y + 6$; 3

9. $5x + 3x = 30 - 2x$; 5

10. $\frac{m}{3} - 4 = 12$; 24

11. $9 + \frac{y}{2} = 2y$; 6

12. $3n - n = \frac{10}{n}$; 5

Write a question that could be used to solve the equation. Then use mental math to solve the equation.

13. $x - 5 = 8$

14. $x + 2 = 12$

15. $6x - 9 = 9$

16. $24 - x = 15$

17. $4x = 32$

18. $3x + 7 = 22$

19. $\frac{x}{7} = 3$

20. $\frac{36}{m} = 3$

21. $x^3 = 64$

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

22. $x - 5 \leq 7$; 12

23. $9 + x > 13$; 4

24. $4x + 1 < 8$; 2

25. $10 - x \geq x$; 4

26. $x^2 + 7 \geq 10$; 2

27. $\frac{4}{x} + 3 \leq 5$; 2

28. $0 > \frac{x - 3}{6}$; 9

29. $6(x + 1) \geq 8x - 7$; 2

30. $\frac{10 + c}{c} < c - 3$; 5

Match the verbal sentence with its mathematical representation.31. The sum of 20 and x is greater than 30.

A. $x^2 = 36$

32. The quotient of x and 20 is greater than or equal to 30.

B. $20 + x > 30$

33. The product of 30 and x is less than 10.

C. $4 - x \leq 30$

34. The square of x is equal to 36.

D. $\frac{x}{20} \geq 30$

35. The difference of 4 and x is less than or equal to 30.

E. $30(x) < 10$

36. Locker Installation Suppose your school is replacing some of its lockers. When the old lockers are removed there is a space 200 inches long. Each new locker has a width of 8 inches. You want to know how many new lockers can be installed. You write the equation $8x = 200$ to model the situation. What do the 8, x , and 200 represent? Use mental math to solve the equation.

37. Video Game System You are budgeting money to buy a video game system that costs \$145 including tax. If you save \$5 per week, will you have enough money in 6 months? You write the inequality $5n \geq 145$ to model the situation. What do the 5, the n , and the 145 represent? Use mental math to solve the inequality.

Practice B

For use with pages 32–39

Write the verbal phrase as an algebraic expression. Use x for the variable in your expression.

1. Four more than a number
2. Six less than a number
3. Difference of 12 and a number
4. The sum of a number and two
5. Five times a given number
6. One third of a given number
7. A number divided by eight
8. Nine more than twice a given number
9. Two less than a number, divided by three
10. Three more than the product of ten and a number
11. Five times the sum of a number and one
12. The sum of a number and five, divided by two

Write the verbal sentence as an equation or an inequality.

13. Seven more than a number x is ten.
14. The sum of a number y and six is 13.
15. Eight more than a number y is greater than or equal to ten.
16. The difference of a number a and two is eight.
17. Six less than a number z is less than 21.
18. Thirteen minus a number b is two.
19. The product of 11 and a number x is 22.
20. Fourteen is less than seven times a number x .
21. One more than four times a number b is 17.
22. The quotient of a number t and three is nine.
23. A number a divided by two is greater than nine.
24. Three less than the product of six and a number a is nine.

In Exercises 25–28, which equation correctly models the situation?

25. **Model Planes** Your model plane collection consists of 15 models. Each plane is either a propeller plane or a jet. There are seven fewer propeller planes than jets. Let x be the number of jets.
 - a. $x + (x - 7) = 15$
 - b. $x - 7 = 15$
26. **Bake Sale** You want to make six dozen cookies for a bake sale. If you follow the recipe, one batch makes two dozen cookies. Let b be the number of batches you need to bake.
 - a. $2b = 6$
 - b. $\frac{b}{6} = 2$
27. **Height** You are 65 inches tall. You are 18 inches taller than your younger sister. Let h be your sister's height in inches.
 - a. $h - 18 = 65$
 - b. $h + 18 = 65$
28. **Music** An eighth note is played twice as fast as a quarter note. Eight eighth notes can be played in one measure of music. Let q be the number of quarter notes played in one measure of music.
 - a. $2q = 8$
 - b. $\frac{q}{2} = 8$

Recycling In Exercises 29–31, use the following information.

A recycling center pays \$.05 per aluminum can. You were paid \$4 for recycling cans.

29. Write a verbal model that relates the amount of money paid per can, the number of cans recycled, and the total amount of money you were paid.
30. Assign labels and write an algebraic model based on your verbal model.
31. Use mental math to solve the equation. Check to see if your answer is reasonable.