

Practice

Check

4. Solve each equation using the distributive property.

Verify the solution.

- a) $3(x + 5) = 36$
- b) $4(p - 6) = 36$
- c) $5(y + 2) = 25$
- d) $10(a + 8) = 30$

5. Solve each equation.
Verify the solution.

- a) $-2(a + 4) = 18$
- b) $-3(r - 5) = -27$
- c) $7(-y + 2) = 28$
- d) $-6(c - 9) = -42$

6. Marc has some hockey cards. His friend gives him 3 more cards. Marc says that if he now doubles the number of cards he has, he will have 20 cards. How many cards did Marc start with?

- a) Choose a variable to represent the number of cards Marc started with. Write an equation to model this problem.
- b) Solve the equation using the distributive property.
- c) Verify the solution. Explain your thinking in words.

7. A student wrote this equation to solve the problem in question 6:

$$2n + 3 = 20$$

How would you explain to the student why this is incorrect?

Apply

8. The perimeter of a rectangle is 26 cm. The rectangle has length 8 cm. What is the width of the rectangle?

- a) Write an equation that can be solved using the distributive property.
- b) Solve the equation.
- c) Verify the solution.

9. **Assessment Focus** The price of a souvenir T-shirt was reduced by \$5. Jason bought 6 T-shirts for his friends. The total cost of the T-shirts, before taxes, was \$90. What was the price of a T-shirt before it was reduced?

- a) Write an equation to model this problem.
- b) Solve the equation.
- c) Verify the solution. Explain how you know it is correct.

10. Chuck and 7 friends went to Red Deer's Westerner Days fair. The cost of admission was \$6 per person. They each bought an unlimited midway ride ticket. The total cost of admission and rides for Chuck and his friends was \$264. What was the price of an unlimited midway ride ticket?

- a) Write an equation to model this problem.
- b) Solve the equation. Verify the solution.



- 11.** Inge chose an integer. She added 9, then multiplied the sum by -5 . The product was 15. Which integer did Inge choose?
- Write an equation you can use to solve the problem.
 - Solve the equation.
 - Verify the solution.

- 12.** Mario chose an integer. He subtracted 7, then multiplied the difference by -4 . The product was 36. Which integer did Mario choose?
- Write an equation you can use to solve the problem.
 - Solve the equation.
 - Verify the solution.

- 13.** Kirsten used the distributive property to solve this equation: $8(-x + 3) = 8$

- a) Check Kirsten's work.
Is her solution correct?

$$\begin{aligned}8(-x + 3) &= 8 \\8(-x) + 8(3) &= 8 \\-8x + 24 &= 8 \\-8x + 24 - 24 &= 8 - 24 \\-8x &= -16 \\ \frac{-8x}{-8} &= \frac{-16}{-8} \\x &= -2\end{aligned}$$

- b) If your answer is yes, verify the solution. If your answer is no, describe the error, then correct it.

- 14.** Solve each equation using the distributive property. Verify the solution.
- a) $-10 = 5(t - 2)$ b) $7 = 2(p - 3)$
c) $4(r + 5) = 23$ d) $-3(s + 6) = 18$

15. Take It Further

Amanda's office has 40 employees. The employees want to have a catered dinner. They have found a company that will provide what they need for \$25 per person. Amanda knows that some people will bring a guest. The company has budgeted \$1500 for this event. How many guests can they invite? Assume the price of \$25 includes all taxes.

- Write an equation for this problem.
- Solve the equation.
- Verify the solution.

16. Take It Further

Glenn used the equation $7(n - 2) = 42$ to solve a word problem.

- Create a word problem that can be solved using this equation.
- Solve the problem.
Verify the solution.

17. Take It Further

Solve each equation using the distributive property. Verify the solution.

- $7(2 + p - 5) = 14$
- $8(x - 9 + 7) = -13$
- $-2(10 - s + 1) = -21$

6.1

1. Use a model to solve each equation.

Verify the solution.

- a) $4x = -36$ b) $-7x = 63$
 c) $4x + 7 = 19$ d) $-3x + 5 = 17$

2. Alice has some granola bars in her backpack. If she triples the number of granola bars then adds 4, she will get 13. How many granola bars does Alice have?

- a) Choose a variable. Write an equation for this situation.
 b) Use a model to solve the equation.
 c) Verify the solution.
 Show how you did this.

6.2

3. Solve each equation.

Verify the solution.

- a) $4x + 9 = -27$ b) $-5x + 8 = 23$
 c) $3x - 4 = -3$ d) $10 = 6x + 5$

4. The school's sports teams held a banquet. The teams were charged \$125 for the rental of the hall, plus \$12 for each meal served. The total bill was \$545. How many people attended the banquet?

- a) Write an equation you could use to solve the problem.
 b) Solve the equation. Verify the solution.

6.3

5. Solve each equation.

Verify the solution.

- a) $\frac{n}{4} = -8$ b) $\frac{m}{3} - 2 = 3$
 c) $\frac{b}{-3} = 6$ d) $\frac{f}{-8} + 8 = 12$

6. For each sentence, write an equation. Solve the equation to find the number.

- a) A number divided by -7 is 4 .
 b) A number divided by -9 is -3 .
 c) Add 5 to a number divided by -2 and the sum is 0 .

6.4

7. Draw a rectangle to show that:

$$6(3 + a) = 18 + 6a$$

8. Expand.

- a) $3(x + 11)$ b) $5(12 + y)$
 c) $-7(a - 4)$ d) $-12(-t + 6)$

6.5

9. Use the distributive property to solve each equation. Verify the solution.

- a) $3(x + 2) = 21$ b) $4(p - 3) = 16$
 c) $-5(r + 4) = -15$ d) $6(-s - 3) = 24$

10. Jon is playing a game. He starts with some points. On his first turn, Jon wins 6 points. On his second turn, Jon's points are doubled. He then has 26 points. How many points did Jon start with?

- a) Write an equation to model this problem.
 b) Solve the equation.
 Verify the solution.