

# EXERCISES

For more practice, see *Extra Practice*.

## Practice and Problem Solving

### A Practice by Example

#### Example 1 (page 88)

Solve each equation. Check your answer.

- $4n - 2n = 18$
- $y + y + 2 = 18$
- $a + 6a - 9 = 30$
- $5 - x - x = -1$
- $72 + 4 - 14c = 36$
- $13 = 5 - 13 + 3a$
- $9 = -3 + n + 2n$
- $7m - 3m - 6 = 6$
- $-13 = 2b - b - 10$

#### Example 2 (page 89)

Write an equation to model each situation. Solve your equation.

- Two friends are renting an apartment. They pay the landlord the first month's rent. The landlord also requires them to pay an additional half of a month's rent for a security deposit. The total amount they pay the landlord before moving in is \$1725. What is the monthly rent?
- You are fencing a rectangular puppy kennel with 25 ft of fence. The side of the kennel against your house does not need a fence. This side is 9 ft long. Find the dimensions of the kennel.

#### Example 3 (page 89)

Solve each equation. Check your answer.

- $2(8 + p) = 22$
- $5(a - 1) = 35$
- $15 = -3(2q - 1)$
- $26 = 6(5 - a)$
- $m + 5(m - 1) = 7$
- $-4(x + 6) = -40$
- $48 = 8(x + 2)$
- $5(y - 3) = 19$
- $5(2 + y) = 77$

#### Example 4 (page 90)

- $\frac{a}{7} - \frac{5}{7} = \frac{6}{7}$
- $x - \frac{5}{8} = \frac{7}{8}$
- $\frac{m}{6} - 7 = \frac{2}{3}$
- $\frac{2}{3} + \frac{3k}{4} = \frac{71}{12}$
- $4 + \frac{m}{8} = \frac{3}{4}$
- $\frac{a}{2} + \frac{1}{5} = 17$
- $\frac{1}{2} + \frac{7x}{10} = \frac{13}{20}$
- $\frac{9y}{14} + \frac{3}{7} = \frac{9}{14}$
- $\frac{1}{5} + \frac{3w}{15} = \frac{4}{5}$

#### Example 5 (page 90)

- $3m + 4.5m = 15$
- $7.8y + 2 = 165.8$
- $3.5 = 12s - 5s$
- $1.06y - 3 = 0.71$
- $0.11p + 1.5 = 2.49$
- $25.24 = 5y + 3.89$
- $1.12 - 1.25y = 8.62$
- $1.025x - 2.458 = 7.583$
- $0.25m - 0.4m = 9.8$

### B Apply Your Skills

Solve each equation.

- $0.5t - 3t + 5 = 0$
- $-(z + 5) = -14$
- $\frac{a}{15} + \frac{4}{15} = \frac{9}{15}$
- $0.5(x - 12) = 4$
- $8y - (2y - 3) = 9$
- $\frac{2}{3} + y = \frac{3}{4}$
- $2 + \frac{a}{-4} = \frac{3}{5}$
- $\frac{1}{4}(m - 16) = 7$
- $x + 3x - 7 = 29$
- $4x + 3.6 + x = 1.2$
- $2(1.5c + 4) = -1$
- $26.54 - p = 0.5(50 - p)$

51. **Error Analysis** Explain the error in the student's work at the right.

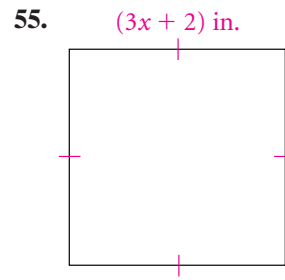
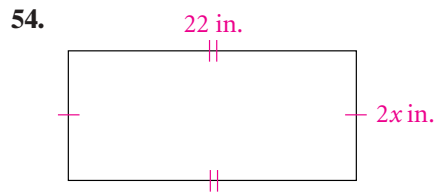
$$\begin{aligned}\frac{3}{8}x - 1 &= 4 \\ 3x - 1 &= 32 \\ 3x &= 33 \\ x &= 11\end{aligned}$$

52. **Critical Thinking** Suppose you want to solve the equation  $-3m + 4 + 5m = -6$ . What would you do as your first step?






53. **Writing** To solve  $-\frac{1}{2}(3x - 5) = 7$ , you can use the Distributive Property, or you can multiply each side of the equation by  $-2$ . Which method do you prefer? Explain why.

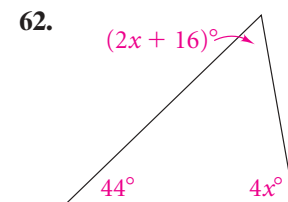
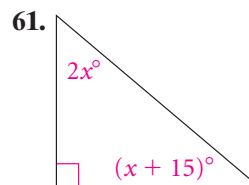
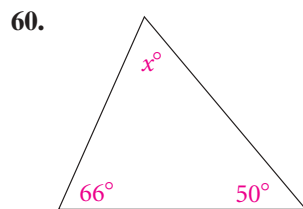
 **Geometry** The perimeter of each rectangle is 64 in. Find the value of  $x$ .



Use an equation to solve each problem.



-  56. John and two friends rent a canoe at a park. Each person must rent a life jacket. If the bill for the rental of the canoe and life jackets is \$41, for how many hours did they rent the canoe?
-  57. **Moving Costs** The MacNeills rented a moving truck for \$49.95 plus \$.30 per mile. Before returning the truck, they filled the tank with gasoline, which cost \$18.32. The total cost was \$95.87. Find the number of miles the truck was driven.
-  58. **Cell Phones** Jane's cell phone plan is \$40 per month plus \$.15 per minute for each minute over 200 minutes of call time. If Jane's cell phone bill is \$58.00, for how many minutes was she billed?
59. **Open-Ended** Write an expression with four terms that can be simplified to an expression with two terms.

 **Geometry** Find the value of  $x$ . (*Hint: The sum of the measures of the angles of a triangle is  $180^\circ$ .*)



 **Challenge**

For Exercises 63–67, use an equation to solve each problem.

-  63. **Cars** You fill your car's gas tank when it is about  $\frac{1}{2}$  empty. The next week, you fill the tank a second time when it is about  $\frac{3}{4}$  empty. If you buy a total of  $18\frac{1}{2}$  gal of gas on these two days, about how many gallons does the tank hold?
64. A work crew has two pumps, one new and one old. The new pump can fill a tank in 5 hours. The old pump can fill the same tank in 7 hours.
- How much of a tank can be filled in 1 hour with the new pump? With the old pump?
  - Write an expression for the number of tanks the new pump can fill in  $t$  hours. (*Hint: Write the rate at which the new pump fills tanks as a fraction and then multiply by  $t$ .*)
  - Write an expression for the number of tanks the old pump can fill in  $t$  hours.
  - Write and solve an equation for the time it will take the pumps to fill one tank if the pumps are used together.
-  65. **Investing** Mr. Fairbanks invested half his money in land, a tenth in stock, and a twentieth in bonds. He put the remaining \$35,000 in a savings account. What is the total amount of money that Mr. Fairbanks saved or invested?

**CANOE RENTAL**  
 \$5.00 per hour  
 \$2.00 life jacket

66. **Business** A company buys a copier for \$10,000. The value of the copier is  $\$10,000(1 - \frac{n}{20})$  after  $n$  years. After how many years will the value of the copier be \$6500?
67. **Carpentry** Kate cut a board 2 m long into two pieces. One piece is 10 cm shorter than the other. How long is each piece? (Note: 1 m = 100 cm)



## Standardized Test Prep

### Multiple Choice

68. What is the value of the expression  $-3r + 6 + r$  when  $r = -2$ ?  
 A. -6                      B. -2                      C. 10                      D. 14
69. Solve  $8n + 5 - 2n = 41$ .  
 F.  $3\frac{1}{2}$                       G.  $4\frac{1}{2}$                       H. 6                      I.  $7\frac{2}{3}$
70. If a number is increased by 3 and that number is doubled, the result is -8. What was the original number?  
 A. -7                      B. -5.5                      C. 1                      D. 6
71. The gas tank in Royston's car holds 12 gal of gasoline. The car averages 29 mi/gal. Royston has already driven 140 mi. About how many gallons of gasoline are left in the tank?  
 F. 6 gal                      G. 7 gal                      H. 8 gal                      I. 9 gal
72. Josie's goal is to run 40 miles each week. This week she has already run distances of 5.3 miles, 6.5 miles, and 6.2 miles. If she wants to spread out the remaining miles evenly over the next 4 days, which equation can you use to find how many miles ( $m$ ) per day she must run?  
 A.  $5.3 + 6.5 + 6.2 + 40 = m$                       B.  $40 - 5.2 - 6.5 - 6.2 = m$   
 C.  $5.3 + 6.5 + 6.2 + 4m = 40$                       D.  $5.3 + 6.5 + 6.2 + m = \frac{40}{4}$
73. A cell phone company charges \$.35 for the first minute but only \$.10 every minute after that. Which equation can you use to find how many minutes  $m$  Eric talked if the bill for the call was \$5.45?  
 F.  $0.35 + 0.10(m - 1) = 5.45$                       G.  $0.35 + 0.10m = 5.45$   
 H.  $0.10 + 0.35(m - 1) = 5.45$                       I.  $0.10 + 0.35m = 5.45$



### Take It to the NET

Online lesson quiz at  
[www.PHSchool.com](http://www.PHSchool.com)

## Mixed Review

### Lesson 2-2

Solve each equation.

74.  $2y + 4 = -6$     75.  $3x - 15 = 33$     76.  $-4n + 20 = 36$     77.  $-8 - c = 11$   
 78.  $3x + 5 = 12$     79.  $-4y - 3 = 15$     80.  $8m - 4 = 8$     81.  $-p + 3 = 10$

### Lesson 1-7

Mental Math Simplify each expression.

82.  $14 \cdot 4 \cdot 25$                       83.  $16 + 28 + 34 + 72$                       84.  $-8 + 15 + -9 + 2$   
 85.  $3 \cdot 3 \cdot 10$                       86.  $2 \cdot 8 \cdot 5$                       87.  $27 + 46 - 17 - 16$

### Lessons 1-4 through 1-6

Simplify each expression.

88.  $2 - 6$                       89.  $-9 \cdot (-3)$                       90.  $-7 + (-4)$                       91.  $16 \div (-4)$   
 92.  $-7 + (-3)$                       93.  $-5 - (-3)$                       94.  $-5 \cdot 6$                       95.  $-25 \div (-5)$



## Checkpoint Quiz 1

Lessons 2-1 through 2-3



Instant self-check  
quiz online and  
on CD-ROM

### Solve and check.

1.  $x - 7 = -6$

2.  $\frac{w}{3} = 11$

3.  $15 = 0.75v$

4.  $2t - 1 = 4$

5.  $\frac{b}{3} - 20 = 20$

6.  $-12 - 4x + 3 = -1$

7.  $\frac{y}{8} + \frac{y}{12} = -4$

8.  $9(n + 7) = -81$

9.  $\frac{1}{2} = \frac{2}{3}b + \frac{1}{6}b$

10. **Sales** A telemarketer makes calls from her home. She earns \$240 per month plus a commission of 5% on her sales. Her employer also reimburses her for long distance telephone charges for calls made for the company. Last month she received a check for \$256.65, which included a reimbursement of \$8.95. What was the total of her sales?