

For more practice, see *Extra Practice*.

Solving

Solve each equation. Check your answer.

1. $4n - 2n = 18$

2. $y + y + 2 = 18$

3. $a + 6a - 9 = 30$

4. $5 - x - x = -1$

5. $7z + 4 - 14c = 36$

6. $13 = 5 - 13 + 3a$

7. $9 = -3 + n + 2n$

8. $7m - 3m - 6 = 6$

9. $-13 = 2b - b - 10$

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

10. 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?
11. 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.

Solve each equation. Check your answer.

12. $2(8 + p) = 22$

13. $5(a - 1) = 35$

14. $15 = -3(2q - 1)$

15. $26 = 6(5 - a)$

16. $m + 5(m - 1) = 7$

17. $-4(x + 6) = -40$

18. $48 = 8(x + 2)$

19. $5(y - 3) = 19$

20. $5(2 + y) = 77$

21. $\frac{a}{7} - \frac{5}{7} = \frac{6}{7}$

22. $x - \frac{5}{8} = \frac{7}{8}$

23. $\frac{m}{6} - 7 = \frac{2}{3}$

24. $\frac{2}{3} + \frac{3k}{4} = \frac{71}{12}$

25. $4 + \frac{m}{8} = \frac{3}{4}$

26. $\frac{a}{2} + \frac{1}{3} = 17$

27. $\frac{1}{2} + \frac{7x}{10} = \frac{13}{20}$

28. $\frac{9y}{14} + \frac{3}{7} = \frac{9}{14}$

29. $\frac{1}{5} + \frac{3w}{15} = \frac{4}{5}$

30. $3m + 4.5m = 15$

31. $7.8y + 2 = 165.8$

32. $3.5 = 12s - 5s$

33. $1.06y - 3 = 0.71$

34. $0.11p + 1.5 = 2.49$

35. $25.24 = 5y + 3.89$

36. $1.12 + 1.25y = 8.62$

37. $1.025x + 2.458 = 7.583$

38. $0.25m + 0.1m = 9.8$

or Skills

Solve each equation.

39. $0.5r - 3r + 5 = 0$

40. $-(z + 5) = -14$

41. $\frac{6}{13} + \frac{4}{13} = \frac{9}{13}$

42. $0.5(x - 12) = 4$

43. $8y - (2y - 3) = 9$

44. $\frac{2}{3} + y = \frac{1}{4}$

45. $2 + \frac{a}{4} = \frac{3}{3}$

46. $\frac{1}{4}(m - 16) = 7$

47. $x + 3x - 7 = 29$

48. $4x + 3.6 + x = 1.2$

49. $2(1.5c + 4) = -1$

50. $26.54 - p = 0.5(50 - p)$

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

$$\frac{3}{8}x - 1 = 4$$

$$3x - 1 = 32$$

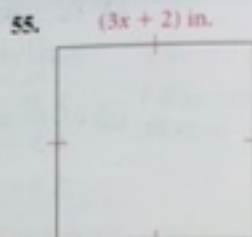
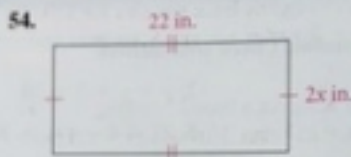
$$3x = 33$$

$$x = 11$$

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.

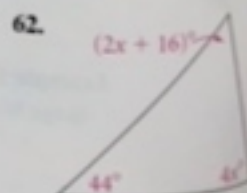
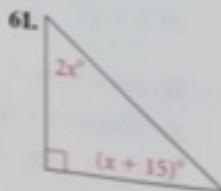
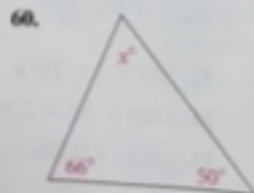
54. **Geometry** The perimeter of each rectangle is 64 in. Find the value of x .



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 \$0.30 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 \$0.15 per minute for each minute over 200 minutes of call time. If Jane's cell phone bill is \$58.00, for how many extra calling minutes was she billed?
59. **Open-Ended** Write an expression with four terms that can be simplified to an expression with two terms.

60. **Geometry** Find the value of x . (*Hint: The sum of the measures of the angles of a triangle is 180° .*)



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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?
66. **Business** A company buys a copier for \$10,000. The value of the copier is $\$10,000(1 - \frac{t}{20})$ after t 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*)