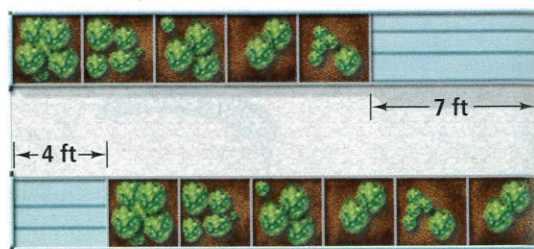


Write and solve an equation for each situation. Check your solution.

← See Problem 2.

- STEM** 19. **Architecture** An architect is designing a rectangular greenhouse. Along one wall is a 7-ft storage area and 5 sections for different kinds of plants. On the opposite wall is a 4-ft storage area and 6 sections for plants. All of the sections for plants are of equal length. What is the length of each wall?



20. **Business** A hairdresser is deciding where to open her own studio. If the hairdresser chooses Location A, she will pay \$1200 per month in rent and will charge \$45 per haircut. If she chooses Location B, she will pay \$1800 per month in rent and will charge \$60 per haircut. How many haircuts would she have to give in one month to make the same profit at either location?

Solve each equation. Check your answer.

← See Problem 3.

21.  $3(q - 5) = 2(q + 5)$   
 22.  $8 - (3 + b) = b - 9$   
 23.  $7(6 - 2a) = 5(-3a + 1)$   
 24.  $(g + 4) - 3g = 1 + g$   
 25.  $2r - (5 - r) = 13 + 2r$   
 26.  $5g + 4(-5 + 3g) = 1 - g$

Determine whether each equation is an *identity* or whether it has *no solution*.

← See Problem 4.

27.  $2(a - 4) = 4a - (2a + 4)$   
 28.  $5y + 2 = \frac{1}{2}(10y + 4)$   
 29.  $k - 3k = 6k + 5 - 8k$   
 30.  $2(2k - 1) = 4(k - 2)$   
 31.  $-6a + 3 = -3(2a - 1)$   
 32.  $4 - d = -(d - 4)$

**B** Apply

Solve each equation. If the equation is an identity, write *identity*. If it has no solution, write *no solution*.

33.  $3.2 - 4d = 2.3d + 3$   
 34.  $3d + 4 = 2 + 3d - \frac{1}{2}$   
 35.  $2.25(4x - 4) = -2 + 10x + 12$   
 36.  $3a + 1 = -3.6(a - 1)$   
 37.  $\frac{1}{2}h + \frac{1}{3}(h - 6) = \frac{5}{6}h + 2$   
 38.  $0.5b + 4 = 2(b + 2)$   
 39.  $-2(-c - 12) = -2c - 12$   
 40.  $3(m + 1.5) = 1.5(2m + 3)$

41. **Travel** Suppose a family drives at an average rate of 60 mi/h on the way to visit relatives and then at an average rate of 40 mi/h on the way back. The return trip takes 1 h longer than the trip there.
- Let  $d$  be the distance in miles the family traveled to visit their relatives. How many hours did it take to drive there?
  - In terms of  $d$ , how many hours did it take to make the return trip?
  - Write and solve an equation to determine the distance the family drove to see their relatives. What was the average rate for the entire trip?