

# Practice 2-4

## Equations with Variables on Both Sides

Solve each equation. Check your answer. If appropriate, write *identity* or *no solution*.

- |   |   |                                    |
|---|---|------------------------------------|
| 1. $7 - 2n = n - 14$                            | 2. $2(4 - 2r) = -2(r + 5)$                                    | 3. $3d + 8 = 2d - 7$               |
| 4. $6t = 3(t + 4) - t$                          | 5. $8z - 7 = 3z - 7 + 5z$                                     | 6. $7x - 8 = 3x + 12$              |
| 7. $3(n - 1) = 5n + 3 - 2n$                     | 8. $2(6 - 4d) = 25 - 9d$                                      | 9. $4s - 12 = -5s + 51$            |
| 10. $8(2f - 3) = 4(4f - 8)$                     | 11. $6k - 25 = 7 - 2k$  | 12. $3v - 9 = 7 + 2v - v$          |
| 13. $4(b - 1) = -4 + 4b$                        | 14. $\frac{1}{4}x + \frac{1}{2} = \frac{1}{4}x - \frac{1}{2}$ | 15. $6 - 4d = 16 - 9d$             |
| 16. $\frac{2}{3}a - \frac{3}{4} = \frac{3}{4}a$ | 17. $2s - 12 + 2s = 4s - 12$                                  | 18. $3.6y = 5.4 + 3.3y$            |
| 19. $4.3v - 6 = 8 + 2.3v$                       | 20. $4b - 1 = -4 + 4b + 3$                                    | 21. $\frac{2}{3}(6x + 3) = 4x + 2$ |
| 22. $6y + 9 = 3(2y + 3)$                        | 23. $4g + 7 = 5g - 1 - g$                                     | 24. $2(n + 2) = 5n - 5$            |
| 25. $6 - 3d = 5(2 - d)$                         | 26. $6.1h = 9.3 - 3.2h$                                       | 27. $-4.4s - 2 = -5.5s - 4.2$      |
| 28. $3(2f + 4) = 2(3f - 6)$                     | 29. $\frac{3}{4}t - \frac{5}{6} = \frac{2}{3}t$               | 30. $3v + 8 = 8 + 2v + v$          |
| 31. $\frac{1}{2}d - \frac{3}{4} = \frac{3}{5}d$ | 32. $5(r + 3) = 2r + 6$                                       | 33. $8 - 3(p - 4) = 2p$            |

Write an equation to model each situation. Then solve. Check your answer.

34. Hans needs to rent a moving truck. Suppose Company A charges a rate of \$40 per day and Company B charges a \$60 fee plus \$20 per day. For what number of days is the cost the same?
35. Suppose a video store charges nonmembers \$4 to rent each video. A store membership costs \$21 and members pay only \$2.50 to rent each video. For what number of videos is the cost the same?
36. Suppose your club is selling candles to raise money. It costs \$100 to rent a booth from which to sell the candles. If the candles cost your club \$1 each and are sold for \$5 each, how many candles must be sold to equal your expenses?

Find the value of  $x$ .

