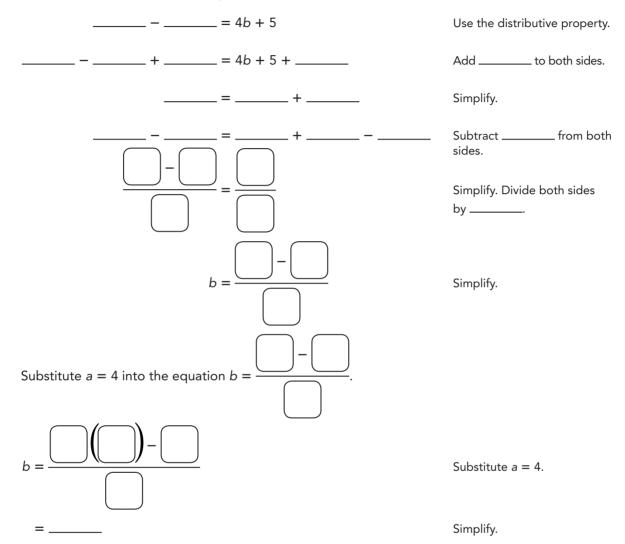
# Lesson 3.4 Solving for a Variable in a Two-Variable Linear Equation

### Solve for a variable in a linear equation with parentheses.

- Example -The formula for converting a length f, in feet, to a length h, in inches, is f = 12h. a) Express *h* in terms of *f*. f = 12h $\frac{f}{12} = \frac{12h}{12}$ Divide both sides by 12.  $h = \frac{f}{12}$ Simplify. **b)** Create a table of f and h values for f = 2, 4, 6, and 8. Substitute f = 2, 4, 6, and 8 into the equation  $h = \frac{f}{12}$ :  $h = \frac{2}{12}$   $h = \frac{4}{12}$   $h = \frac{6}{12}$   $h = \frac{8}{12}$  $=\frac{1}{6}$   $=\frac{1}{3}$   $=\frac{1}{2}$   $=\frac{2}{3}$ So, the table of values is: f (feet) 2 4 6 8 1 1 1 2 h (inch) 3 2 6 3

## Complete.

1. Solve for b in terms of a in the equation 3(a - 2) = 4b + 5. Find b when a = 4.



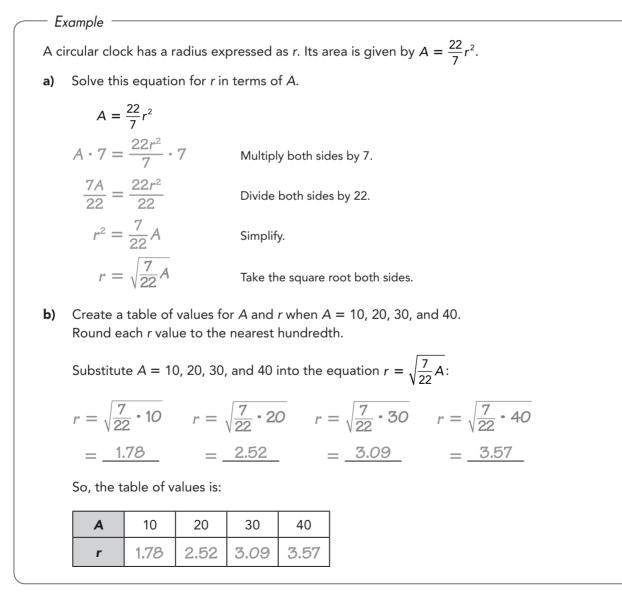
#### Solve. Show your work.

**2.** Solve for p in terms of q in the equation  $2q = \frac{1}{3}(5p - 9)$ . Find p when q = -2.

#### Solve. Show your work.

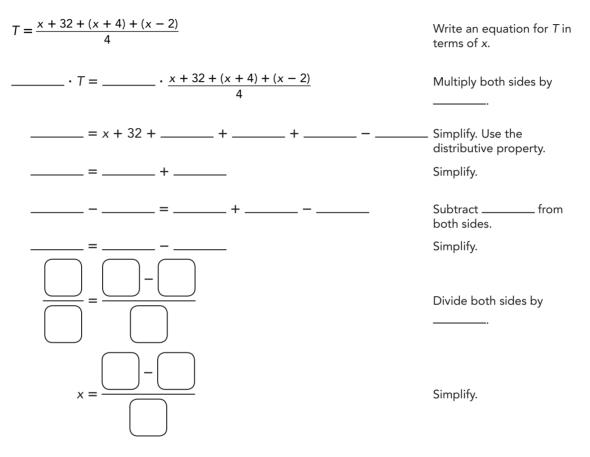
**3.** Solve for k in terms of m in the equation k - 3m = 10 - 2(m - 7). Find k when m = 8.

#### Solve for a variable in a linear equation when parentheses are needed.



## Complete.

- **4.** The mean temperature of the day is *T*. The mean temperature was calculated by finding the average of the following four temperatures taken at equal intervals throughout the day: x, 32, x + 4, and x 2.
  - a) Express x in terms of T.



**b)** Create a table of values for T and x when T = 28, 29, 30, and 31. Round each x value to the nearest tenth.

Substitute *T* = 28, 29, 30, and 31 into the equation  $x = \frac{4T - 34}{3}$  and complete the table of values:

Т	28	29	30	31
x				