EXAMPLE 4 Solve an equation using multiplication

Solve $\frac{x}{4} = 5$.

Solution

$\frac{x}{4} = 5$ **Write original equation.**

$4 \cdot \frac{x}{4} = 4 \cdot 5$ **Multiply each side by 4.**

$x = 20$ **Simplify.**

✓ **GUIDED PRACTICE**   for Example 4

Solve the equation. Check your solution.

9. $\frac{t}{-3} = 9$ **10.** $6 = \frac{c}{7}$ **11.** $13 = \frac{z}{-2}$ **12.** $\frac{a}{5} = -11$

USING RECIPROCALS Recall that the product of a number and its reciprocal is 1. You can isolate a variable with a fractional coefficient by multiplying each side of the equation by the reciprocal of the fraction.

EXAMPLE 5 Solve an equation by multiplying by a reciprocal

Solve $-\frac{2}{7}x = 4$.

REVIEW RECIPROCALS
For help with finding reciprocals, see p. 915.

Solution

The coefficient of x is $-\frac{2}{7}$. The reciprocal of $-\frac{2}{7}$ is $-\frac{7}{2}$.

$-\frac{2}{7}x = 4$ **Write original equation.**

$-\frac{7}{2}\left(-\frac{2}{7}x\right) = -\frac{7}{2}(4)$ **Multiply each side by the reciprocal, $-\frac{7}{2}$.**

$x = -14$ **Simplify.**

▶ The solution is -14. Check by substituting -14 for x in the original equation.

CHECK $-\frac{2}{7}x = 4$ **Write original equation.**

$-\frac{2}{7}(-14) \stackrel{?}{=} 4$ **Substitute -14 for x.**

$4 = 4$ ✓   **Simplify. Solution checks.**

✓ **GUIDED PRACTICE**   for Example 5

Solve the equation. Check your solution.

13. $\frac{5}{6}w = 10$ **14.** $\frac{2}{3}p = 14$ **15.** $9 = -\frac{3}{4}m$ **16.** $-8 = -\frac{4}{5}v$