

Lesson 5-4

Example 1

Solve each equation. Check the solution.

a. $7x - 3 = 32$

b. $5(z + 8) = 45$

Solution

$$\begin{aligned} \text{a.} \quad & 7x - 3 = 32 \\ & 7x - 3 + 3 = 32 + 3 \\ & 7x = 35 \\ & \frac{7x}{7} = \frac{35}{7} \\ & x = 5 \end{aligned}$$

Check

$$\begin{aligned} & 7x - 3 = 32 \\ & 7(5) - 3 = 32 \\ & 35 - 3 = 32 \\ & 32 = 32 \quad \checkmark \end{aligned}$$

$$\begin{aligned} \text{b.} \quad & 5(z + 8) = 45 \\ & 5z + 40 = 45 \\ & 5z + 40 - 40 = 45 - 40 \\ & 5z = 5 \\ & \frac{5z}{5} = \frac{5}{5} \\ & z = 1 \end{aligned}$$

Check

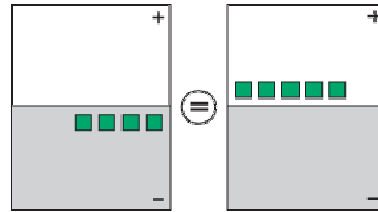
$$\begin{aligned} & 5(z + 8) = 45 \\ & 5(1 + 8) = 45 \\ & 5(9) = 45 \\ & 45 = 45 \quad \checkmark \end{aligned}$$

Example 2

Use Algeblocks to solve $3x - 4 = 5$.

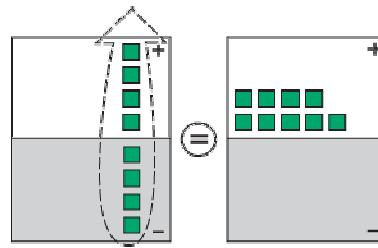
Solution

Model the equation.



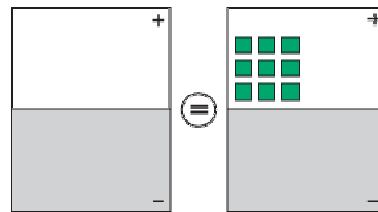
$$3x - 4 = 5$$

Add 4 to both sides.
Remove the zero pairs.



$$3x - 4 + 4 = 5 + 4$$

Divide each side by 3.



$$\frac{3x}{3} = \frac{9}{3}$$

Read the solution, $x = 3$.

Example 3

Solve the proportion. $\frac{m}{20} = \frac{18}{30}$

Solution

$$\frac{m}{20} = \frac{18}{30}$$

$$m \cdot 30 = 20 \cdot 18 \quad \text{Write the cross products.}$$

$$30m = 360$$

$$\frac{30m}{30} = \frac{360}{30}$$

$$m = 12 \quad \text{Be sure to check the solution.}$$

Example 4

TRAVEL Ryan rented a car for Thursday, Friday, and Saturday of one week. The rental company charges different daily rates for weekdays and weekends. If the weekend rate is \$35 a day and the rental fee for the three-day period was \$94, what was the weekday daily rental rate?

Solution

Write and solve an equation that represents the situation.

Let x = the weekday daily rental rate.

$$2x + 35 = 94$$

$$2x + 35 - 35 = 94 - 35$$

$$2x = 59$$

$$x = 29.5$$

The weekday daily rental rate is \$29.50.