

Solving Multistep Equations

A **multistep equation** contains two or more of the operations of addition, subtraction, multiplication, and division.

To solve a multistep equation *containing variables*, follow these two rules.

1. Do addition or subtraction first.
2. Do multiplication or division last.

EXAMPLE 1 Solve: $3y - 9 = 36$

STEP 1 Add 9 to each side of the equation.

Simplify each side.

STEP 2 Divide each side of the equation by 3.

Simplify each side.

$$3y - 9 = 36$$

$$3y - 9 + 9 = 36 + 9$$

$$3y = 45$$

$$\frac{3y}{3} = \frac{45}{3}$$

$$y = 15$$

ANSWER: $y = 15$

Check: $3(15) - 9 = 36$
 $45 - 9 = 36$
 $\checkmark 36 = 36$

EXAMPLE 2 Solve: $\frac{x}{5} + 6 = 8$

STEP 1 Subtract 6 from each side of the equation.

Simplify each side.

STEP 2 Multiply each side of the equation by 5.

Simplify each side.

$$\frac{x}{5} + 6 = 8$$

$$\frac{x}{5} + 6 - 6 = 8 - 6$$

$$\frac{x}{5} = 2$$

$$\frac{x}{5}(5) = 2(5)$$

$$x = 10$$

ANSWER: $x = 10$

Check: $\frac{10}{5} + 6 = 8$
 $2 + 6 = 8$
 $\checkmark 8 = 8$