

# Section Overview



## Solving One-Step Equations

Lessons 2-1, 2-2

**Why?** Because equations are used in all areas of mathematics, as well as in other disciplines, solving them is an important foundational skill.

To **isolate the variable**, use the **inverse operation** to *undo* the operation that is performed on the variable.

$$x - 5 = -12 \quad \text{Add 5 to both sides to undo the subtraction.}$$

$$\frac{x + 5}{+5} = \frac{-12 + 5}{+5}$$

$$x = -7$$

$$-6.3 = \frac{m}{3} \quad \text{Multiply both sides by 3 to undo the division.}$$

$$3(-6.3) = 3\left(\frac{m}{3}\right)$$

$$-18.9 = m$$

Many students can figure out the answers to one-step equations without actually solving. However, they will need to learn these basic concepts to solve more complicated equations in this course and in future math courses.

## Solving Multi-Step Equations

Lessons 2-3, 2-4

**Why?** Some equations contain more than one operation or have variables on both sides of the equal sign.

### Multi-Step Equation

Undo the operations performed on the variable in reverse order of operations.

$$8 = 2 - 3x$$

$$\frac{-2}{-2} \quad \frac{-2}{-2} \quad \text{Undo the addition first.}$$

$$6 = -3x$$

$$\frac{6}{-3} = \frac{-3x}{-3} \quad \text{Then undo the multiplication.}$$

$$-2 = x$$

### Variables on Both Sides

First get the variable terms on one side. Then solve.

$$3m = -5m - 24$$

$$\frac{+5m}{+5m} \quad \frac{+5m}{+5m}$$

$$8m = -24$$

$$\frac{8m}{8} = \frac{-24}{8}$$

$$m = -3$$

## Solving for a Variable

Lesson 2-5

**Why?** You can solve a formula for a variable to make the formula more convenient for finding the information requested in a problem.

To solve an equation that has more than one variable, isolate one of the variables by using inverse operations.

$$F = 1.8C + 32$$

$$\frac{-32}{-32} \quad \frac{-32}{-32} \quad \text{Subtract 32 from both sides.}$$

$$F - 32 = 1.8C$$

$$\frac{F - 32}{1.8} = \frac{1.8C}{1.8} \quad \text{Divide both sides by 1.8.}$$

$$\frac{F - 32}{1.8} = C$$