

## STUDENT VIEW

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### Linear Equations and Applications

1.1

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#### Objectives

- Solve simple linear equations.
- Solve equations involving fractions.
- Solve fractions involving decimals.
- Solve equations for one variable in terms of another.
- Solve applied problems.

#### Equation-Solving Strategies

- When solving an equation, you may need to use one or more of the following steps.
- Simplify an expression by removing parentheses, then combine like terms, if any.
  - Combine real numbers or expressions with the same variable names.
  - Add or subtract the same real number or expression to, or from, both sides of the equation.
  - Multiply or divide both sides of the equation by the same nonzero real number.

We first examine solutions of a **linear equation**, that is, an equation that can be written in the form  $ax + b = 0$ , where  $a, b$  are real numbers and  $a \neq 0$ . This is the most elementary type of equation.

#### Example 1 Solving an Equation

Solve the following equation for  $x$ .

$$3(x + 2) - 2 = 4x$$

Subtract 6 from both sides.

$$3(x + 2) - 2 = 4x$$

$$3x + 6 - 2 = 4x$$

$$3x + 4 = 4x$$

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Given equation

$$3(x + 2) - 2 = 4x$$

Subtract 6 from both sides.

$$3(x + 2) - 2 = 4x$$

$$3x + 6 - 2 = 4x$$

$$3x + 4 = 4x$$

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Click on **VIDEO ICONS** to watch tutorial videos that match each example

Click to see problem in **WOLFRAM ALPHA**

Click on **PRACTICE EXAMPLE ICONS** to work similar problems to each example

PRACTICE EXAMPLE

Solve for  $x$ :  $2 = 4(2x + 3) - 3x = 30$

$x =$

CHECK ANSWER

WolframAlpha

Solve for x: 2 = 4(2x + 3) - 3x = 30

ANSWERS

1.  $x = 10$

VIDEO TUTOR

Solve the following equation for  $x$ :

$3(x + 2) - 2 = 4x$

ANSWERS

1.  $x = 10$

Select a **VIDEO TUTOR** to watch tutorials for each example in the section.