

2 Linear Equations

Key Concepts

Writing Equations (Lesson 2-1)

- Identify the unknown you are looking for and assign a variable to it. Then, write the sentence as an equation.

Solving Equations (Lessons 2-2 to 2-4)

- Addition and Subtraction Properties of Equality:
If an equation is true and the same number is added to or subtracted from each side, the resulting equation is true.
- Multiplication and Division Properties of Equality:
If an equation is true and each side is multiplied or divided by the same nonzero number, the resulting equation is true.
- Steps for Solving Equations:

Step 1 Simplify the expression on each side. Use the Distributive Property as needed.

Step 2 Use the Addition and/or Subtraction Properties of Equality to get the variables on one side and the numbers without variables on the other side.

Step 3 Use the Multiplication or Division Property of Equality to solve.

Absolute Value Equations (Lesson 2-5)

- For any real numbers a and b , if $|a| = b$ and $b \geq 0$, then $a = b$ or $a = -b$.

Ratios and Proportions (Lesson 2-6)

- The Means-Extremes Property of Proportion states that in a proportion, the product of the extremes is equal to the product of the means.

Percent of Change (Lesson 2-7)

- percent of change = $\frac{\text{the change in an amount}}{\text{the original amount}}$ expressed as a percent

Weighted Averages (Lesson 2-9)

- the weighted average M of a set of data
$$= \frac{\text{sum of (units} \times \text{the value per unit)}}{\text{the total number of units}}$$

In this chapter,
you will:

- Create equations that describe relationships.
- Solve linear equations in one variable.
- Solve proportions.
- Use formulas to solve real-world problems.

Key Vocabulary

consecutive integers (p. 92)	percent of decrease (p. 119)
dimensional analysis (p. 128)	percent of increase (p. 119)
equivalent equations (p. 83)	proportion (p. 111)
extremes (p. 112)	rate (p. 113)
formula (p. 76)	ratio (p. 111)
identity (p. 98)	scale (p. 114)
literal equation (p. 127)	scale model (p. 114)
means (p. 112)	solve an equation (p. 83)
multi-step equations (p. 91)	unit analysis (p. 128)
number theory (p. 92)	unit rate (p. 113)
percent of change (p. 119)	weighted average (p. 132)