

Extension

Use after Lesson 3.7

Find Percent of Change



GOAL Solve percent of change problems.

Key Vocabulary

- percent of change
- percent of increase
- percent of decrease

A **percent of change** indicates how much a quantity increases or decreases with respect to the original amount. If the new amount is greater than the original amount, the percent of change is called a **percent of increase**. If the new amount is less than the original amount, the percent of change is called a **percent of decrease**.

KEY CONCEPT

For Your Notebook

Percent of Change

The percent of change is the ratio of the amount of increase or decrease to the original amount.

$$\text{Percent of change, } p\% = \frac{\text{Amount of increase or decrease}}{\text{Original amount}}$$

The amount of increase is the new amount minus the original amount.
The amount of decrease is the original amount minus the new amount.

EXAMPLE 1 Find a percent of change

Identify the percent of change as an *increase* or *decrease*. Then find the percent of change.

a. Original: 140
New: 189

b. Original: 70
New: 59.5

Solution

a. Because the new amount is greater than the original amount, the percent of change is an increase.

$$\begin{aligned} p\% &= \frac{\text{Amount of increase}}{\text{Original amount}} \\ &= \frac{189 - 140}{140} \\ &= \frac{49}{140} \\ &= 0.35 \\ &= 35\% \end{aligned}$$

▶ The percent of increase is 35%.

b. Because the new amount is less than the original amount, the percent of change is a decrease.

$$\begin{aligned} p\% &= \frac{\text{Amount of decrease}}{\text{Original amount}} \\ &= \frac{70 - 59.5}{70} \\ &= \frac{10.5}{70} \\ &= 0.15 \\ &= 15\% \end{aligned}$$

▶ The percent of decrease is 15%.

CHECK REASONABLENESS

Because 50 is one third (about 33%) of 150, it is reasonable that 49 is 35% of 140.