

Study Tip

In this section, we will only look at quantities that increase over time. In Chapter 4, we will look at quantities that increase or decrease over time.

Using Percent to Represent Change

In the first four examples of this section, percent is used to represent a part of a whole.

Example 1: Federally owned land is part of the *total* state land.

Example 2: Households with dogs are part of *all* households.

Example 3: Tiles with vowels are part of *all* tiles in SCRABBLE.

Example 4: Fat weight is part of the *total* weight of a person.

The last two examples in this section look at another common use of percent—that is, to describe the amount that a quantity changes over time.

EXAMPLE 5 Using Percent to Describe an Increase

Reword the statement so it uses a percent that is greater than 100%.

Life expectancy at birth in the United States in 1901 was 49 years. At the end of the century, it was 77 years, an increase of more than 50%.

SOLUTION

Compare 77 years to 49 years using division.

$$\frac{\text{Increased amount}}{\text{Original amount}} = \frac{77 \text{ years}}{49 \text{ years}} \approx 1.57 = 157\%$$

So, one way to rephrase the statement is as follows.

Life expectancy at birth in the United States in 1901 was 49 years. The life expectancy of 77 years in 2000 was 157% of the 1901 life expectancy.

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Use the line graph to write two paragraphs describing the change in women’s life expectancy at birth from 1900 to 2000.

- a. In the first paragraph, describe the change in life expectancy.
- b. In the second paragraph, compare the newer life expectancy to the older one.

