

## 3-7

## Study Guide and Intervention

## Percent of Change

**Percent of Change** When an increase or decrease in an amount is expressed as a percent, the percent is called the **percent of change**. If the new number is greater than the original number, the percent of change is a **percent of increase**. If the new number is less than the original number, the percent of change is the **percent of decrease**.

**Example 1**

**Find the percent of increase.**

**original: 48**

**new: 60**

First, subtract to find the amount of increase. The amount of increase is  $60 - 48 = 12$ .

Then find the percent of increase by using the original number, 48, as the base.

$$\frac{12}{48} = \frac{r}{100} \quad \text{Percent proportion}$$

$$12(100) = 48(r) \quad \text{Cross products}$$

$$1200 = 48r \quad \text{Simplify.}$$

$$\frac{1200}{48} = \frac{48r}{48} \quad \text{Divide each side by 48.}$$

$$25 = r \quad \text{Simplify.}$$

The percent of increase is 25%.

**Example 2**

**Find the percent of decrease.**

**original: 30**

**new: 22**

First, subtract to find the amount of decrease. The amount of decrease is  $30 - 22 = 8$ .

Then find the percent of decrease by using the original number, 30, as the base.

$$\frac{8}{30} = \frac{r}{100} \quad \text{Percent proportion}$$

$$8(100) = 30(r) \quad \text{Cross products}$$

$$800 = 30r \quad \text{Simplify.}$$

$$\frac{800}{30} = \frac{30r}{30} \quad \text{Divide each side by 30.}$$

$$26\frac{2}{3} = r \quad \text{Simplify.}$$

The percent of decrease is  $26\frac{2}{3}\%$ , or about 27%.

**Exercises**

**State whether each percent of change is a percent of increase or a percent of decrease. Then find each percent of change. Round to the nearest whole percent.**

1. original: 50  
new: 80

2. original: 90  
new: 100

3. original: 45  
new: 20

4. original: 77.5  
new: 62

5. original: 140  
new: 150

6. original: 135  
new: 90

7. original: 120  
new: 180

8. original: 90  
new: 270

9. original: 27.5  
new: 25

10. original: 84  
new: 98

11. original: 12.5  
new: 10

12. original: 250  
new: 500