

Percent of Change Vocabulary

percent of change

percent of increase

percent of decrease

Percents can be used to describe a change. **Percent of change** is the ratio of the *amount of change* to the *original amount*.

$$\text{percent change} = \frac{\text{amount of change}}{\text{original amount}}$$

Percent of increase describes how much the original amount increases.

Percent of decrease describes how much the original amount decreases.

Find the percent increase or decrease from 16 to 12.

This is percent decrease.

$$16 - 12 = 4 \quad \textit{First find the amount of change.}$$

Think: What percent is 4 of 16?

$$\frac{\text{amount of decrease}}{\text{original amount}} \longrightarrow \frac{4}{16} \quad \textit{Set up the ratio.}$$

$$\frac{4}{16} = 0.25 \quad \textit{Find the decimal form.}$$

$$= 25\% \quad \textit{Write as a percent.}$$

From 16 to 12 is a 25% decrease.

Find the percent of increase or decrease from 15 to 20.

$$\frac{\text{amount of increase}}{\text{original amount}} = \frac{20 - 15}{15} = \frac{5}{15} = \frac{1}{3}$$
$$= 33\frac{1}{3}\% \text{ increase}$$

When Jim was exercising, his heart rate went from 79 beats per minute to 98 beats per minute. Estimate the percent of increase.

$$98 - 79 = 19 \quad \textit{First find the amount of change.}$$

Think: What percent is 19 of 79?

$$\frac{\text{amount of increase}}{\text{original amount}} \longrightarrow \frac{19}{79} \quad \textit{Set up the ratio.}$$

$$\frac{19}{79} = 0.27 \quad \textit{Find the decimal form.}$$

$$= 27\% \quad \textit{Write as a percent.}$$

Jim's heart rate increased by about 24% when he exercised.

In 1999, a certain stock was worth \$1.25 a share. In 2002, the same stock was worth \$0.85 a share. What was the percent decrease?

$$1.25 - 0.85 = 0.40 \text{ } \textit{First find the amount of change.}$$

Think: What percent is 0.40 of 1.25?

$$\frac{\text{amount of decrease}}{\text{original amount}} \longrightarrow \frac{0.40}{1.25} \text{ } \textit{Set up the ratio.}$$

$$\frac{0.40}{1.25} = 0.32 \quad \textit{Find the decimal form.}$$

$$= 32\% \quad \textit{Write as a percent.}$$

The value of the stock decreased by 32%.

During one town election, 1769 voters participated. At the next election, 3586 voters voted. Estimate the percent of increase in the number of voters between the two elections.

1769 is about 1800 and 3586 is about 3600.

$$3600 - 1800 = 1800$$

$$\frac{\text{amount of increase}}{\text{original amount}} = \frac{1800}{1800}$$

$$\frac{1800}{1800} = \frac{1}{1} = 1$$

= 100%

about a 100% increase in the number of voters

An infant loses body weight during its first few days of life. What is the percent of decrease in the weight of an infant who weighed 90 ounces at birth and 81 ounces a few days later?

$$90 - 81 = 9$$

$$\frac{\text{amount of increase}}{\text{original amount}} = \frac{9}{90}$$

$$\frac{9}{90} = \frac{1}{10} = 10\%$$

a 10% decrease in the infant's weight

Sarah bought a DVD player originally priced at \$450 that was on sale for 20% off. What was the price after discount?

$\$450 \cdot 20\%$ *First find 20% of \$450.*

$\$450 \cdot 0.20 = \90 *20% = 0.20*

The amount of decrease is \$90.

Think: The reduced price is \$90 *less than* \$450.

$\$450 - \$90 = \$360$ *Subtract the amount of decrease.*

The sale price of the DVD player was \$360.

The discount on a stereo that sells for \$900 is 15% off the regular price. What is the sale price of the stereo?

$$\$900 \cdot 15\%$$

$$\$900 \cdot 0.15 = \$135$$

The amount of decrease is \$135, so the reduced price is \$135 less than \$900.

$$\$900 - \$135 = \$765$$

The sale price of the stereo is \$765.

Mr. Schultz owns a hardware store and typically marks up merchandise 28% over warehouse cost. How much would he charge for a wrench that costs him \$12.45?

$$\$12.45 \cdot 28\%$$

$$\$12.45 \cdot 0.28 \approx \$3.49$$

The amount of increase (the markup) is \$3.49, so the price charged is \$3.49 more than \$12.45.

$$\$12.45 + \$3.49 = \$15.94$$

The retail price for the wrench would be \$15.94.

Lesson Quizzes

Standard Lesson Quiz

Lesson Quiz for Student Response Systems

Lesson Quiz

Find each percent increase or decrease to the nearest percent.

1. from 12 to 15

25% increase

2. from 1625 to 1400

14% decrease

3. from 37 to 125

238% increase

4. from 1.25 to 0.85

32% decrease

5. A computer game originally sold for \$40 but is now on sale for 30% off. What is the sale price of the computer game?

\$28

Lesson Quiz for Student Response Systems

1. Identify the percent increase or decrease to the nearest percent.
from 23 to 29

A. 26% decrease

B. 26% increase

C. 32% decrease

D. 32% increase

Lesson Quiz for Student Response Systems

2. Identify the percent increase or decrease to the nearest percent.
from 1440 to 1220

- A. 15% decrease
- B. 15% increase
- C. 28% decrease
- D. 28% increase

Lesson Quiz for Student Response Systems

3. A winter coat originally sold for \$75 but is now on sale for 20% off. What is the sale price of the winter coat?

A. \$55

B. \$60

C. \$65

D. \$70