# 2 7 Practice Percent Of Change

NAME _____ DATE _____ PERIOD _____

**Lesson 4 Skills Practice**

***Percent of Change***

Find the percent of change. Round to the nearest tenth, if necessary. Then state whether the percent of change is an increase or decrease.

1. from 12 in. to 18 in.
   **50%; increase**
2. from 27 days to 30 days
   **11.1%; increase**
3. from $48.50 to $38.80
   **−20%; decrease**
4. from 25 lb to 12 lb
   **−52%; decrease**
5. from 10 mm to 3 mm
   **−70%; decrease**
6. from $875 to $1000
   **14.3%; increase**
7. from $18.10 to $22.50
   **24.3%; increase**
8. from 32 people to 3040 people
   **9400%; increase**
9. from 28 stray cats to 5 stray cats
   **−82.1%; decrease**
10. from 12 words to 90 words
    **650%; increase**

Find the percent error.

11. actual speed: 38 mph, estimated speed: 35 mph **8.6%**
12. estimated length: 45 cm; actual length: 50 cm **10%**
13. projected growth: 2 inches, actual growth 3 inches **33.3%**
14. estimated weight: 200 pounds, actual weight: 230 pounds **13.0%**
15. actual cost: $75, estimated cost: $66 **12%**
16. actual capacity: 16 quarts, estimated capacity 13 quarts **18.8%**
17. actual time: 58 minutes, projected time: 45 minutes **22.4%**
18. actual distance: 100 yards, estimated distance 85 yards **15%**
19. estimated mass: 300 kilograms, actual mass: 284 kilograms **5.6%**
20. actual length: 35 centimeters, estimated length 36 centimeters **2.9%**

**Math Accelerated • Chapter 6** Percents

2 7 practice percent of change is an essential concept in mathematics that helps students understand how to calculate the difference between two values relative to their original amount. This percentage calculation is crucial not only in mathematics but also in various real-life applications such as finance, economics, and everyday decision-making. In this article, we will explore the fundamentals of percent change, its formula, applications, examples, and practice problems to enhance understanding of the concept.

## Understanding Percent Change

Percent change is a measure used to express the degree of change over time, indicating how much something has increased or decreased relative to its original value. It is widely used in various fields, including business, economics, and social sciences, to analyze trends and make informed decisions.

### The Formula for Percent Change

The formula for calculating percent change is straightforward:

$$
\text{Percent Change} = \left(\frac{\text{New Value} - \text{Old

$$
\text{Value}}{\text{Old Value}}\right) \times 100
$$

Where:
- New Value is the value after the change has occurred.
- Old Value is the original value before the change.

This formula allows you to determine the rate of change between two values, giving you insight into how significant that change is in relative terms.

## Types of Percent Change

There are two primary types of percent change:

1. Positive Percent Change: This occurs when the new value is greater than the old value. For example, if a product's price increases from $50 to $60, the percent change is positive, indicating growth.

2. Negative Percent Change: This occurs when the new value is less than the old value. For instance, if a stock's price drops from $100 to $80, the percent change is negative, indicating a loss.

# Applications of Percent Change

Percent change is a versatile tool used in various scenarios. Some common applications include:

- Finance: Investors often use percent change to assess stock performance, comparing the current price to the purchase price to determine profit or loss.
- Economics: Economists use percent change to analyze inflation rates, GDP growth, and other economic indicators.
- Sales and Marketing: Businesses track sales data over time to understand growth or decline, using percent change for strategic planning.
- Education: Teachers and students can use percent change to analyze grades, attendance, and other metrics.

## Real-Life Examples of Percent Change

To better understand percent change, let’s look at a few real-life scenarios:

1. Price Increase of a Product: If a shirt originally costs $20 and is marked up to $25, the percent change can be calculated as follows:
- Old Value = $20
- New Value = $25

- Percent Change = $\left(\frac{25 - 20}{20}\right) \times 100 = 25\%$

2. Decrease in Population: If a town's population drops from 10,000 to 9,500, the percent change is:
- Old Value = 10,000
- New Value = 9,500
- Percent Change = $\left(\frac{9,500 - 10,000}{10,000}\right) \times 100 = -5\%$

3. Change in Salary: If an employee's salary increases from $50,000 to $55,000, the percent change is:
- Old Value = $50,000
- New Value = $55,000
- Percent Change = $\left(\frac{55,000 - 50,000}{50,000}\right) \times 100 = 10\%$

# Practice Problems for Percent Change

Engaging in practice problems is one of the most effective ways to reinforce understanding of percent change. Here are some practice problems for you to solve:

1. A car originally costs $15,000 and is now priced at $12,000. What is the percent change?

2. A student’s score improved from 75 to 90. Calculate the percent change in the score.

3. The population of a city decreased from 200,000 to 180,000. What is the percent change?

4. A pair of shoes was $80 and is now on sale for $64. Find the percent change in price.

5. If a company’s profits increased from $1 million to $1.2 million, what is the percent change in profits?

## Solutions to Practice Problems

1. Old Value: $15,000, New Value: $12,000
Percent Change = $\left(\frac{12,000 - 15,000}{15,000}\right) \times 100 = -20\%$

2. Old Value: 75, New Value: 90
Percent Change = $\left(\frac{90 - 75}{75}\right) \times 100 = 20\%$

3. Old Value: 200,000, New Value: 180,000

Percent Change = $\left(\frac{180,000 - 200,000}{200,000}\right) \times 100 = -10\%$

4. Old Value: $80, New Value: $64
Percent Change = $\left(\frac{64 - 80}{80}\right) \times 100 = -20\%$

5. Old Value: $1,000,000, New Value: $1,200,000
Percent Change = $\left(\frac{1,200,000 - 1,000,000}{1,000,000}\right) \times 100 = 20\%$

# Tips for Mastering Percent Change

To effectively master the concept of percent change, consider the following tips:

- Practice Regularly: Solve various problems to become familiar with different scenarios involving percent change.
- Understand the Context: Always consider whether the change is an increase or decrease, as this will affect your interpretation of the result.
- Use Real-Life Examples: Relate the concept of percent change to real-world situations to enhance understanding and retention.
- Check Your Work: After calculating percent change, verify your results to ensure accuracy.

# Conclusion

In summary, 2 7 practice percent of change equips students with the necessary skills to analyze and interpret changes in values effectively. By understanding how to calculate percent change and applying it to various contexts, individuals can make informed decisions based on quantitative data. Through practice, real-life applications, and consistent engagement with the material, students can achieve proficiency in this critical mathematical concept. Whether for academic purposes or everyday use, mastering percent change is an invaluable skill that enhances analytical capabilities.

# Frequently Asked Questions

## What is the formula for calculating the percent of change?

The formula for calculating the percent of change is: Percent of Change = (New Value - Original Value) / Original Value 100.

## How do you find the percent increase when the original value is 50 and the new value is 75?

Using the formula, Percent of Change = (75 - 50) / 50 100 = 50% increase.

## If a product's price decreased from $200 to $150, what is the percent decrease?

Percent of Change = (150 - 200) / 200 100 = -25%, indicating a 25% decrease.

## What does a percent change of 0% signify?

A percent change of 0% signifies that there has been no change in value; the original and new values are the same.

## Can you have a negative percent change?

Yes, a negative percent change occurs when the new value is less than the original value, indicating a decrease.

## How would you calculate the percent change if the original value is 30 and the new value is 45?

Percent of Change = (45 - 30) / 30 100 = 50% increase.

## What is the percent change if an item goes from $80 to $64?

Percent of Change = (64 - 80) / 80 100 = -20%, indicating a 20% decrease.

## If a student scores 70 on a test and then scores 85 on a retake, what is the percent increase in the score?

Percent of Change = (85 - 70) / 70 100 = 21.43% increase.

## How do you interpret a percent change of 100%?

A percent change of 100% means the new value is double the original value.

## What factors can affect the percent of change in real-world scenarios?

Factors such as inflation, market demand, and economic conditions can affect the percent of change in prices and values.

# 2 7 Practice Percent Of Change

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