

Parent Newsletter

Chapter 6: Percents

Standards

Common Core:

7.EE.3: Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

7.RP.3: Use proportional relationships to solve multistep ratio and percent problems. Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error.

Key Terms

A *percent of change* is the percent that a quantity changes from the original amount.

When the original amount increases, the percent of change is called a *percent of increase*.

When the original amount decreases, the percent of change is called a *percent of decrease*.

A *percent error* is the percent that an estimated quantity differs from the actual amount.

A *discount* is a decrease in the original price of an item.

The increase from what the store pays to the selling price is called a *markup*.

Simple interest is money earned on a savings account or an investment. It can also be money you pay for borrowing money.

Interest is money paid or earned for the use of money.

The *principal* is the amount of money borrowed or deposited.

Simple interest is money paid or earned only on the principal.

Students will...

Write percents as decimals.

Write decimals as percents.

Compare and order fractions, decimals, and percents.

Use the percent proportion to find parts, wholes, and percents.

Use the percent equation to find parts, wholes, and percents.

Find percents of increase.

Find percents of decrease.

Use percent of discounts to find prices of items.

Use percent of markups to find selling prices of items.

Use the simple interest formula to find interest earned or paid, annual interest rates, and amounts paid on loans.

Solve real-life problems.

Key Ideas

Writing Percents as Decimals

- Remove the percent symbol. Then divide by 100, or just move the decimal point two places to the left.

Writing Decimals as Percents

- Multiply by 100, or just move the decimal point two places to the right. Then add a percent symbol.

The Percent Proportion

You can represent “ a is p percent of w ” with the proportion $\frac{a}{w} = \frac{p}{100}$ where a is part of the whole w , and $p\%$, or $\frac{p}{100}$, is the percent.

The Percent Equation

To represent “ a is p percent of w ,” use an equation.

$$a = p \cdot w$$

Diagram illustrating the equation $a = p \cdot w$. A green box labeled "percent in fraction or decimal form" points to p . A red box labeled "part of the whole" points to a . A blue box labeled "whole" points to w .

Percent Error

$$\text{Percent error} = \frac{\text{amount of error}}{\text{actual amount}}$$

Percents of Increase and Decrease

$$\text{Percent of increase} = \frac{\text{new amount} - \text{original amount}}{\text{original amount}}$$

$$\text{Percent of decrease} = \frac{\text{original amount} - \text{new amount}}{\text{original amount}}$$

Simple Interest

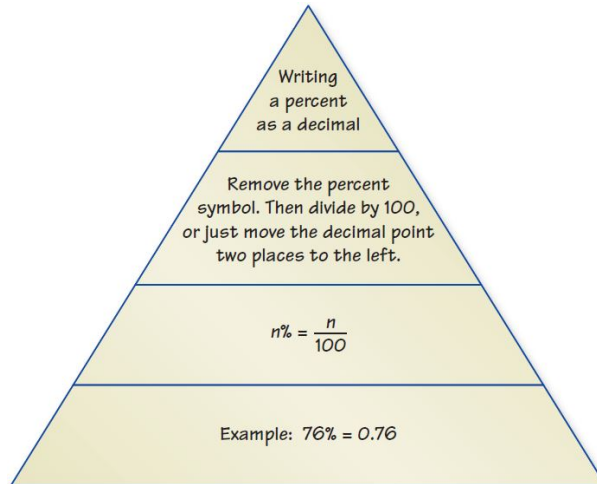
$$I = Prt$$

Diagram illustrating the simple interest formula $I = Prt$. A box labeled "Simple interest" points to I . A box labeled "Principal" points to P . A box labeled "Annual interest rate (in decimal form)" points to r . A box labeled "Time (in years)" points to t .



Reference Tools

A **Summary Triangle** can be used to explain a concept. Typically, the summary triangle is divided into 3 or 4 parts. In the top part, write the concept being explained. In the middle part(s), write any procedure, explanation, description, definition, theorem, and/or formula(s). In the bottom part, write an example to illustrate the concept. A summary triangle can be used as an assessment tool, in which blanks are left for your student to complete. Also, they can be placed on note cards to use as a quick study reference.



Games

- I Have... Who Has...?
- Match Them Up
- Order Matters

These are available online in the *Game Closet* at www.bigideasmath.com.

Essential Questions

How does the decimal point move when you rewrite a percent as a decimal and when you rewrite a decimal as a percent?

How can you order numbers that are written as fractions, decimals, and percents?

How can you use models to estimate percent questions?

How can you use an equivalent form of the percent proportion to solve a percent problem?

What is a percent of decrease?
What is a percent of increase?

How can you find discounts and selling prices?

How can you find the amount of simple interest earned on a savings account? How can you find the amount of interest owed on a loan?

Quick Review

Percent/Decimal Review

- 25% is 25 per one hundred or 0.25.
- 250% is 250 per one hundred or 2.5.
- 0.25% is 25 hundredths per one hundred or 0.0025.
- 0.025% is 25 thousandths per one hundred or 0.00025.
- When comparing and ordering fractions, decimals, and percents, write the numbers as all fractions, all decimals, or all percents.
- Percent bar models help estimate answers, while ratio tables can be used to find the exact answers.
- The percent error compares the amount of error to the actual amount.
- For the Simple Interest formula, the interest rate is written as a decimal. Time is written in terms of years. When time is given in months, remember to express it as a fraction of a year or as a decimal.

What's the Point?

The ability to use percents is very useful in real life for events like taking out a loan on a car. Ask your student to research car loans through different banks or dealerships. How much interest would they pay over the life of a specific loan? Does this seem like a good choice? Why or Why not?

The STEM Videos available online show ways to use mathematics in real-life situations.

The Chapter 6: Tornado! STEM Video is available online at www.bigideasmath.com.

