

Use Percent to Solve Problems

Lesson 4-5

Name: _____

Date: _____

Class: _____

Key Vocabulary

Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

20% off \$50 → discount is \$10

Discount

Money taken off the first price to make it cheaper.

A \$30 item with 10% markup sells for \$33

Markup

Money added to the cost to set the selling price.

6% tax on \$20 adds \$1.20

Tax

Extra money added to a price for the government.

15% tip on \$40 = \$6

Tip

Extra money you give for good service.

50% means 50 out of 100

Percent

A way to compare a number to 100, shown with the % sign.

Key Ideas & Notes

- Welcome to the arcade prize shop!
- You've been saving up tickets and now it's time to spend them.
- Some prizes are on sale with discounts, but the shop also charges a 5% ticket tax on purchases.
- Plus, there's a 10% markup on limited-edition prizes.
- Complete the table to find the final ticket cost for each arcade prize after discounts and taxes.

Think About It

- What happens to the price when there is a discount?
- What happens to the price when tax is added?
- Does it matter whether you apply the discount or tax first?

My Notes

Guided Examples

Example 1

A prize costs 120 tickets and is 25% off. What is the sale price?

Solution: 25% of 120 = $0.25 \times 120 = 30$. Sale price: $120 - 30 = 90$ tickets.

Answer: A. 90 tickets

Example 2

A meal costs \$20. You leave a 15% tip. How much is the tip?

Solution: 15% of \$20 = $0.15 \times 20 = \$3.00$.

Answer: A. \$3.00

Example 3

A shirt costs \$40 and the sales tax is 5%. What is the total cost including tax?

Solution: Tax: $0.05 \times \$40 = \2.00 . Total: $\$40 + \$2 = \$42.00$.

Answer: A. \$42.00

Write About the Math

The Writing Revolution

I can explain my solution using the words discount, markup, tax, tip, and percent.

1. Kernel Sentence subject + verb

Model: Percent is a way to compare a number to 100, shown with the % sign.

Porcentaje es una manera de comparar un número con 100, con el signo %.

Write a kernel sentence about percent. Use a subject and a verb.

Escribe una oración base sobre porcentaje. Usa un sujeto y un verbo.

2. Sentence Expansion because · but · so

Kernel: Percent matters in math

Porcentaje importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because
porque

Percent matters in math because ____.

Porcentaje importa en matemáticas porque ____.

but
pero

Percent matters in math, but ____.

Porcentaje importa en matemáticas, pero ____.

so
entonces

Percent matters in math, so ____.

Porcentaje importa en matemáticas, entonces ____.

3. Sentence Types 4 ways to write a math idea

Statement
Afirmación

Tell one true fact about percent.
Di un hecho verdadero sobre percent.

Percent ____.

Question
Pregunta

Ask a question about percent.
Haz una pregunta sobre percent.

How does ____ ?

¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about percent.
Muestra entusiasmo sobre percent.

Wow, ____ !

¡Guau, ____ !

Command
Mandato

Tell a partner what to do with percent.
Dile a un compañero qué hacer con percent.

First, ____ .

Primero, ____ .

4. Explain Your Reasoning use a sentence starter

The percent stands for ____ .

El porcentaje representa ____ .

I solved it by ____ .

Lo resolví al ____ .

This is like a ____ **in real life.**

Esto es como un ____ *en la vida real.*

Try It

Solve on your own. Check the answer key when you are done.

1. A store marks up a \$30 item by 40%, then a customer gets 10% off. What is the final price?

- A. \$37.80
- B. \$39.00
- C. \$42.00
- D. \$36.00

Show your work:

2. A restaurant bill is \$35. You want to leave a 20% tip. What is the total amount you pay?

- A. \$42.00
- B. \$40.00
- C. \$38.50
- D. \$55.00

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

A store has a 20% off sale, then takes an additional 10% off the sale price. Is this the same as 30% off the original? Use \$100 as the original price. Show your work for both scenarios and explain the difference.

Sentence starter: Taking 20% off then 10% off gives a final price of \$____, but 30% off the original gives \$____. The difference is \$____ because ____.

Show your work:

Reflect — Exit Ticket

A jacket costs \$80 and is 35% off. Sales tax is 5%. What is the final price?

- A. \$54.60
- B. \$52.00
- C. \$56.00
- D. \$49.40

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. \$37.80 — Markup: $\$30 \times 1.40 = \42 . Discount: $\$42 \times 0.10 = \4.20 . Final: $\$42 - \$4.20 = \$37.80$.
2. **Try It 2:** A. \$42.00 — Tip: $0.20 \times \$35 = \7.00 . Total: $\$35 + \$7 = \$42.00$.
3. **Exit Ticket:** A. \$54.60 — Discount: $0.35 \times \$80 = \28 . Sale price: $\$80 - \$28 = \$52$. Tax: $0.05 \times \$52 = \2.60 . Final: $\$52 + \$2.60 = \$54.60$.

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Percent is a way to compare a number to 100, shown with the % sign.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).