

# Solve Problems with Unit Rates

Lesson 4-7

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Class: \_\_\_\_\_

## Key Vocabulary

Level 1 support

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

*\$2.50 per pound means \$2.50 for every 1 pound*

### Unit Rate

A rate for just 1 of something, like cost for 1 item.

*\$0.10 each vs \$0.15 each — the \$0.10 option is the better buy*

### Better Buy

The choice that costs less for each item.

*\$3 per game < \$4 per game*

### Comparison

Looking at numbers to see which is bigger or smaller.

*\$0.50 per token means each token costs \$0.50*

### Per Unit

For each single item.

*120 miles in 3 hours is a rate (miles and hours are different units)*

### Rate

A ratio comparing two amounts with different units, like miles per hour.

$5/3 = x/12 \rightarrow x = 20$

### Proportion

A math sentence saying two ratios are equal. It helps find a missing number.

## Key Ideas & Notes

- You're the new supply manager for the arcade!
- You need to order tokens, prizes, and snacks from different suppliers.
- Each supplier offers a different package deal.
- Your job is to find the unit rate for each deal and figure out which supplier gives you the best value for every item you need to order.
- Calculate the unit rate for each supplier's deal. Then determine which is the better buy for each item.

### Think About It

- How can you compare deals when the quantities are different?
- What operation helps you find the cost for just one item?
- Does the biggest package always give the best unit rate?

### My Notes

---

---

---

---

---

## Guided Examples

### Example 1

**Which is the better buy: 6 bouncy balls for \$4.50 or 10 bouncy balls for \$8.00?**

**Solution:**  $\$4.50 \div 6 = \$0.75$  each.  $\$8.00 \div 10 = \$0.80$  each.  $\$0.75 < \$0.80$ , so 6 for \$4.50 is the better buy.

**Answer:** A. 6 for \$4.50 — \$0.75 each

### Example 2

**A faucet drips 15 ounces of water in 5 minutes. What is the unit rate?**

**Solution:**  $15 \div 5 = 3$  ounces per minute.

**Answer:** A. 3 ounces per minute

### Example 3

**A printer prints 42 pages in 6 minutes. How many pages does it print in 15 minutes at the same rate?**

**Solution:** Unit rate:  $42 \div 6 = 7$  pages per minute. In 15 minutes:  $7 \times 15 = 105$  pages.

**Answer:** A. 105 pages

# Write About the Math

## The Writing Revolution

I can explain my comparison using the words unit rate, better buy, per unit, and rate.

### 1. Kernel Sentence subject + verb

**Model:** Unit Rate is a rate for just 1 of something, like cost for 1 item.

*Tasa unitaria es una tasa para solo 1 de algo, como el precio de 1 artículo.*

**Write a kernel sentence about unit rate. Use a subject and a verb.**

*Escribe una oración base sobre tasa unitaria. Usa un sujeto y un verbo.*

---

---

### 2. Sentence Expansion because · but · so

**Kernel:** Unit Rate matters in math

*Tasa unitaria importa en matemáticas*

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

**because**  
*porque*

**Unit Rate matters in math because \_\_\_\_.**

*Tasa unitaria importa en matemáticas porque \_\_\_\_.*

---

**but**  
*pero*

**Unit Rate matters in math, but \_\_\_\_.**

*Tasa unitaria importa en matemáticas, pero \_\_\_\_.*

---

**so**  
*entonces*

**Unit Rate matters in math, so \_\_\_\_.**

*Tasa unitaria importa en matemáticas, entonces \_\_\_\_.*

---

### 3. Sentence Types 4 ways to write a math idea

**Statement**  
*Afirmación*

Tell one true fact about unit rate.  
*Di un hecho verdadero sobre unit rate.*

**Unit rate** \_\_\_\_.

---

**Question**  
*Pregunta*

Ask a question about unit rate.  
*Haz una pregunta sobre unit rate.*

**How does** \_\_\_\_ ?

*¿Cómo* \_\_\_\_ ?

---

**Exclamation**  
*Exclamación*

Show excitement about unit rate.  
*Muestra entusiasmo sobre unit rate.*

**Wow,** \_\_\_\_ !

*¡Guau,* \_\_\_\_ !

---

**Command**  
*Mandato*

Tell a partner what to do with unit rate.  
*Dile a un compañero qué hacer con unit rate.*

**First,** \_\_\_\_ .

*Primero,* \_\_\_\_ .

---

### 4. Explain Your Reasoning use a sentence starter

**The unit rate is** \_\_\_\_.

*La tasa unitaria es* \_\_\_\_.

**I used it to** \_\_\_\_.

*La usé para* \_\_\_\_.

**This helps me choose** \_\_\_\_.

*Esto me ayuda a elegir* \_\_\_\_.

---

---

---

## Try It

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

**1. A machine dispenses 24 tokens in 3 minutes. At this rate, how many tokens does it dispense in 10 minutes?**

- A. 80 tokens
- B. 60 tokens
- C. 72 tokens
- D. 240 tokens

Show your work:

---

---

---

**2. A factory produces 360 widgets in 8 hours. At the same rate, how many widgets are produced in a 12-hour shift?**

- A. 540 widgets
- B. 480 widgets
- C. 360 widgets
- D. 720 widgets

Show your work:

---

---

---

## Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

**Two arcade supply companies offer token deals. Company X: 300 tokens for \$36. Company Y: 500 tokens for \$55. The arcade needs 1,000 tokens. Find the unit rate for each company, determine which is cheaper per token, and calculate the total cost of buying 1,000 tokens from the better deal.**

*Sentence starter: Company X charges \$\_\_\_ per token and Company Y charges \$\_\_\_ per token. The better deal is Company \_\_\_ because \_\_\_. Buying 1,000 tokens would cost \$\_\_\_.*

Show your work:

---

---

---

---

## Reflect — Exit Ticket

**A car travels 195 miles on 6 gallons of gas. What is the unit rate in miles per gallon?**

- A. 32.5 miles per gallon
- B. 33 miles per gallon
- C. 30 miles per gallon
- D. 1,170 miles per gallon

Your answer:

---

---

---

---

## Answer Key & Teacher Guide

1. **Try It 1:** A. 80 tokens — *Unit rate:  $24 \div 3 = 8$  tokens per minute. In 10 minutes:  $8 \times 10 = 80$  tokens.*
2. **Try It 2:** A. 540 widgets — *Unit rate:  $360 \div 8 = 45$  widgets per hour. In 12 hours:  $45 \times 12 = 540$  widgets.*
3. **Exit Ticket:** A. 32.5 miles per gallon —  *$195 \div 6 = 32.5$  miles per gallon.*

### Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Unit Rate is a rate for just 1 of something, like cost for 1 item.
- **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).