UNIT 3 · STANDARD 6.RP.3

Use Ratio Reasoning

Lesson 3-6

Name: _____ Date: _____ Class: _____

Key Vocabulary

Level 1 support

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

2/3 = 8/12

Proportion

A math sentence saying two ratios are equal.

2/3 = 8/12 → 2×12 = 24 and 3×8 = 24 ✓

Cross-multiply

Multiplying across two ratios to check if they are equal.

5:8 × 3 → 15:24

Scale

To multiply or divide both parts of a ratio by the same number.

1/2 and 3/6 and 5/10 all equal the same amount — half

Equivalent

Having the same value.

60 miles in 3 hours → 20 miles per 1 hour

Unit rate

A rate for just 1 of something. You find it by dividing.

Key Ideas & Notes

- Chef Academy received a huge catering order — a banquet for 120 guests!
- Chef Reyes's original appetizer recipe serves 8 people and calls for 5 cups of diced tomatoes and 3 cups of mozzarella.
- The students need to use ratio reasoning to scale the recipe so every guest gets the same delicious flavor.
- Chef Reyes wrote several pairs of ratios on the board. Sort them: which pairs are equivalent ratios (proportions) and which are NOT equivalent?

Think About It

- How many times bigger is 120 compared to 8?
- What operation would help you scale both ingredients?
- What stays the same about the recipe even when the amounts change?

My Notes

Guided Examples

Example 1

A recipe uses 4 cups of broth for every 10 servings. How many cups of broth are needed for 30 servings?

Solution: Scale factor: 30 ÷ 10 = 3. Multiply broth by 3: 4 × 3 = 12 cups.

Answer: A. 12

Example 2

Are the ratios 6:9 and 2:3 equivalent?

Solution: Divide 6:9 by 3 to get 2:3. Since both ratios simplify to 2:3, they are equivalent.

Answer: A. Yes, both simplify to 2:3

Example 3

If 3 pounds of apples cost $6, how much do 7 pounds cost?

Solution: Unit rate: $6 ÷ 3 = $2 per pound. For 7 pounds: $2 × 7 = $14.

Answer: A. $14

Write About the Math

The Writing Revolution

I can explain my reasoning using the words proportion, scale, equivalent, and unit rate.

1. Kernel Sentence

subject + verb

Model: Scale is to multiply or divide both parts of a ratio by the same number.
Escalar es multiplicar o dividir ambas partes de una razón por el mismo número.

Write a kernel sentence about scale. Use a subject and a verb.
Escribe una oración base sobre escalar. Usa un sujeto y un verbo.

2. Sentence Expansion

because · but · so

Kernel: Scale matters in math
Escalar importa en matemáticas

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

because / ***porque***
Scale matters in math because ____.
Escalar importa en matemáticas porque ____.

but / ***pero***
Scale matters in math, but ____.
Escalar importa en matemáticas, pero ____.

so / ***entonces***
Scale matters in math, so ____.
Escalar importa en matemáticas, entonces ____.

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

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

Scale ____.

Question
Pregunta

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

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about scale.
Muestra entusiasmo sobre scale.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

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

First, ____ .
Primero, ____ .

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4. Explain Your Reasoning

use a sentence starter

I reasoned that ____.
Razoné que ____.

I used the ratio to ____.
Usé la razón para ____.

This helps me decide ____.
Esto me ayuda a decidir ____.

Try It

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

1. A chef uses the proportion 3/7 = x/28 to scale a recipe. What is x?

A. 12

B. 14

C. 9

D. 21

Show your work:

2. A recipe serves 6 people and uses 4 cups of rice. You need to serve 15 people. Show two different methods to find how much rice you need: (1) using a scale factor and (2) using a unit rate.

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

Find Priya's Mistake — find the error, then write the correct reasoning.

Show your work:

Reflect — Exit Ticket

A recipe calls for 6 cups of flour for every 15 cookies. How many cups of flour are needed to make 45 cookies?

A. 18

B. 12

C. 24

D. 21

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. 12 — *Scale factor: 28 ÷ 7 = 4. Multiply: 3 × 4 = 12. So x = 12.*
2. **Try It 2:** Method 1 (scale factor): 15 ÷ 6 = 2.5. Multiply rice by 2.5: 4 × 2.5 = 10 cups. Method 2 (unit rate): 4 ÷ 6 = 2/3 cup per person. For 15 people: 2/3 × 15 = 10 cups. Both methods give 10 cups of rice.
3. **Exit Ticket:** A. 18 — *Scale factor: 45 ÷ 15 = 3. Multiply flour by 3: 6 × 3 = 18 cups of flour.*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Scale is to multiply or divide both parts of a ratio by the same number.
- **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).