LESSON MAKER PRO

Fraction Rate Power

Find how much happens in one unit.

GRADE 7 · 7.RP.A.1

CCSS.Math.Content.7.RP.A.1 "Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. For example, if a person walks 1/2 mile in each 1/4 hour..."

NAME _____ DATE _____

DIVIDE FOR ONE UNIT

A unit rate tells how much of the first quantity goes with 1 unit of the second quantity. To divide the first fraction by the second, multiply the first fraction by the reciprocal of the second fraction.

WORKED EXAMPLE

A dispenser fills 13/14 liter in 4/9 minute. What is the unit rate in liters per minute?

1. Write the rate: 13/14 / 4/9 liters per minute.
2. Multiply by the reciprocal: 13/14 x 9/4.
3. Simplify: 117/56 = 2 5/56.

Answer: 117/56 liters per minute, or 2 5/56 liters per minute

PRACTICE 6 problems

1 A scooter travels 3/4 mile in 1/2 hour. Find the unit rate in miles per hour.

ANSWER _____

2 A faucet fills 7/8 gallon in 1/4 minute. Find the unit rate in gallons per minute.

ANSWER _____

3 A game downloads 9/10 gigabyte in 3/5 minute. Find the unit rate in gigabytes per minute.

ANSWER _____

4 A mural covers 2/3 square meter with 1/6 liter of paint. Find the unit rate in square meters per liter.

ANSWER _____

5 A 5/12-pound bag of trail mix costs 3/4 dollar. Find the unit rate in pounds per dollar.

ANSWER _____

6 A plant grows 11/12 inch in 2/5 week. Find the unit rate in inches per week.

ANSWER _____

APPLY IT Show your work

1 At a gaming club, Maya completes 3/5 of a level in 1/4 hour. At this rate, how many levels can she complete per hour?

WORK SPACE

ANSWER _____

2 A streaming app uses 7/10 gigabyte of data in 1/8 hour. What is the unit rate in gigabytes per hour?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Jalen rides 5/6 mile in 1/3 hour. Priya rides 7/8 mile in 1/4 hour. Who rides faster, and by how many miles per hour? Explain using both unit rates.

WORK SPACE AND ANSWER

ANSWER KEY

Fraction Rate Power

GRADE 7 · 7.RP.A.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A scooter travels 3/4 mile in 1/2 hour. Find the unit rate in miles per hour.	**3/2 miles per hour, or 1 1/2 miles per hour**
2	A faucet fills 7/8 gallon in 1/4 minute. Find the unit rate in gallons per minute.	**7/2 gallons per minute, or 3 1/2 gallons per minute**
3	A game downloads 9/10 gigabyte in 3/5 minute. Find the unit rate in gigabytes per minute.	**3/2 gigabytes per minute, or 1 1/2 gigabytes per minute**
4	A mural covers 2/3 square meter with 1/6 liter of paint. Find the unit rate in square meters per liter.	**4 square meters per liter**
5	A 5/12-pound bag of trail mix costs 3/4 dollar. Find the unit rate in pounds per dollar.	**5/9 pound per dollar**
6	A plant grows 11/12 inch in 2/5 week. Find the unit rate in inches per week.	**55/24 inches per week, or 2 7/24 inches per week**

PART 2 · APPLY IT

1. **12/5 levels per hour, or 2 2/5 levels per hour** Compute 3/5 / 1/4. Multiply 3/5 by 4 to get 12/5 levels per hour.
2. **28/5 gigabytes per hour, or 5 3/5 gigabytes per hour** Compute 7/10 / 1/8. Multiply 7/10 by 8 to get 28/5 gigabytes per hour.

CHALLENGE

Priya rides faster by 1 mile per hour. Jalen's unit rate is 5/6 / 1/3 = 5/2 miles per hour, and Priya's unit rate is 7/8 / 1/4 = 7/2 miles per hour. Since 7/2 - 5/2 = 1, Priya is faster by 1 mile per hour.

Accept equivalent improper fractions, mixed numbers, or whole-number forms, with correct units. For the challenge, accept any clear explanation that calculates both rates and compares them correctly.