

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 $\frac{1}{2}$ mile in each $\frac{1}{4}$ 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. Divide the first fraction by the second fraction, then multiply by the reciprocal of the second fraction.

WORKED EXAMPLE

A dispenser fills $\frac{13}{14}$ liter in $\frac{4}{9}$ minute. What is the unit rate in liters per minute?

1. Write the rate: $\frac{13}{14} / \frac{4}{9}$ liters per minute.
2. Multiply by the reciprocal: $\frac{13}{14} \times \frac{9}{4}$.
3. Simplify: $\frac{117}{56} = 2 \frac{5}{56}$.

Answer: $\frac{117}{56}$ liters per minute, or $2 \frac{5}{56}$ liters per minute

PRACTICE 6 problems

- 1** A scooter travels $\frac{3}{4}$ mile in $\frac{1}{2}$ hour. Find the unit rate in miles per hour.

ANSWER _____

- 2** A faucet fills $\frac{7}{8}$ gallon in $\frac{1}{4}$ minute. Find the unit rate in gallons per minute.

ANSWER _____

- 3** A game downloads $\frac{9}{10}$ gigabyte in $\frac{3}{5}$ minute. Find the unit rate in gigabytes per minute.

ANSWER _____

- 4** A mural covers $\frac{2}{3}$ square meter with $\frac{1}{6}$ liter of paint. Find the unit rate in square meters per liter.

ANSWER _____

- 5** A $\frac{5}{12}$ -pound bag of trail mix costs $\frac{3}{4}$ dollar. Find the unit rate in pounds per dollar.

ANSWER _____

- 6** A plant grows $\frac{11}{12}$ inch in $\frac{2}{5}$ week. Find the unit rate in inches per week.

ANSWER _____

APPLY IT Show your work

- 1** At a gaming club, Maya completes $\frac{3}{5}$ of a level in $\frac{1}{4}$ hour. At this rate, how many levels can she complete per hour?

WORK SPACE

ANSWER _____

- 2** A streaming app uses $\frac{7}{10}$ gigabyte of data in $\frac{1}{8}$ hour. What is the unit rate in gigabytes per hour?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

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

PART 1 • PRACTICE

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

PART 2 • APPLY IT

- $\frac{12}{5}$ levels per hour, or $2\frac{2}{5}$ levels per hour** Compute $\frac{3}{5} \div \frac{1}{4}$. Multiply $\frac{3}{5}$ by 4 to get $\frac{12}{5}$ levels per hour.
- $\frac{28}{5}$ gigabytes per hour, or $5\frac{3}{5}$ gigabytes per hour** Compute $\frac{7}{10} \div \frac{1}{8}$. Multiply $\frac{7}{10}$ by 8 to get $\frac{28}{5}$ gigabytes per hour.

CHALLENGE

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