LESSON MAKER PRO

Fraction Rate Quest

Find how much happens for one unit.

GRADE 7 · 7.PAR.4.1

7.PAR.4.1 "Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units presented in realistic problems."

NAME _____ DATE _____

FIND THE UNIT RATE

To find a unit rate, divide the first quantity by the second quantity when you want the first unit per 1 of the second unit. Dividing by a fraction means multiplying by its reciprocal. Include units in your answer.

WORKED EXAMPLE

A hose fills 5/8 gallon in 3/7 minute. What is the filling rate in gallons per minute?

1. Write the rate as division: (5/8) / (3/7).
2. Multiply by the reciprocal: (5/8) x (7/3).
3. Multiply and simplify: 35/24.

Answer: 35/24 gallons per minute

PRACTICE 6 problems

1 A faucet fills 3/4 gallon in 1/5 minute. What is the rate in gallons per minute?

ANSWER _____

2 A 5/12-pound bag of nuts costs 3/4 dollar. What is the cost per pound?

ANSWER _____

3 A cyclist travels 11/12 mile in 1/3 hour. What is the speed in miles per hour?

ANSWER _____

4 Using 3/8 liter of paint covers 2/5 square meter. What area does 1 liter of paint cover?

ANSWER _____

5 A file downloads 9/10 gigabyte in 3/10 minute. What is the download rate in gigabytes per minute?

ANSWER _____

6 A 7/10-meter piece of fabric costs 4/5 dollar. What is the cost per meter?

ANSWER _____

APPLY IT Show your work

1 A video game update downloads 3/5 gigabyte in 1/4 minute. At this rate, how many gigabytes download in 1 minute?

WORK SPACE

ANSWER _____

2 During skate practice, Jordan rides 7/9 mile in 2/5 hour. What is Jordan's speed in miles per hour?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Package A has 3/8 pound of trail mix for 5/6 dollar. Package B has 5/12 pound of trail mix for 7/8 dollar. Which package has the lower cost per pound, and how much lower is it per pound?

_____

_____

ANSWER KEY

Fraction Rate Quest

GRADE 7 · 7.PAR.4.1

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A faucet fills 3/4 gallon in 1/5 minute. What is the rate in gallons per minute?	**15/4 gallons per minute**
2	A 5/12-pound bag of nuts costs 3/4 dollar. What is the cost per pound?	**9/5 dollars per pound**
3	A cyclist travels 11/12 mile in 1/3 hour. What is the speed in miles per hour?	**11/4 miles per hour**
4	Using 3/8 liter of paint covers 2/5 square meter. What area does 1 liter of paint cover?	**16/15 square meters per liter**
5	A file downloads 9/10 gigabyte in 3/10 minute. What is the download rate in gigabytes per minute?	**3 gigabytes per minute**
6	A 7/10-meter piece of fabric costs 4/5 dollar. What is the cost per meter?	**8/7 dollars per meter**

PART 2 · APPLY IT

1. **12/5 gigabytes per minute** Divide 3/5 gigabyte by 1/4 minute. (3/5) / (1/4) = (3/5) x 4 = 12/5.
2. **35/18 miles per hour** Divide 7/9 mile by 2/5 hour. (7/9) / (2/5) = (7/9) x (5/2) = 35/18.

CHALLENGE

Package B has the lower cost per pound. Package A costs 20/9 dollars per pound, Package B costs 21/10 dollars per pound, so Package B is 11/90 dollar per pound lower.

Accept equivalent fractions, mixed numbers, or decimals when they are exact, along with correct units. For the challenge, students should identify Package B and show or state the difference of 11/90 dollar per pound.