

Unit Fraction Power

See every fraction as equal-sized unit pieces.

GRADE 4 • 4.NF.B.4a

CCSS.Math.Content.4.NF.B.4a "Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$."

NAME _____

DATE _____

THE BIG IDEA

The numerator tells how many copies of the unit fraction $1/b$ you have. You can write $a/b = a \times (1/b)$.

WORKED EXAMPLE

Write $7/9$ as a multiple of $1/9$.

1. Each unit piece is $1/9$.
2. Model 7 pieces: $[1/9][1/9][1/9][1/9][1/9][1/9][1/9]$
3. The 7 pieces make $7/9$.
4. Write the repeated pieces as multiplication: $7 \times (1/9)$.

Answer: $7/9 = 7 \times (1/9)$

PRACTICE 6 problems

- 1** Write $3/8$ as a multiple of $1/8$.

ANSWER _____

- 2** Write $5/6$ as a multiple of $1/6$.

ANSWER _____

- 3** Which expression equals $4/10$? A. $10 \times (1/4)$
B. $4 \times (1/10)$ C. $4 \times (1/4)$

ANSWER _____

- 4** Fill in the blank: $\underline{\hspace{1cm}} \times (1/12) = 11/12$.

ANSWER _____

- 5** Write $8/3$ as a multiple of $1/3$.

ANSWER _____

- 6** What fraction is $2 \times (1/5)$?

ANSWER _____

APPLY IT Show your work

- 1** A team badge has 8 equal sections. Each section is $\frac{1}{8}$ of the badge. Priya colors 5 sections. How many $\frac{1}{8}$ sections does she color? Write an equation for the colored part.

WORK SPACE

ANSWER _____

- 2** At a gaming club, a progress meter is divided into 10 equal parts. Each part is $\frac{1}{10}$ of the meter. Jordan fills 6 parts. Write the filled part as a multiple of $\frac{1}{10}$.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A trail map shows a route that is $\frac{13}{8}$ mile long. Explain how many $\frac{1}{8}$ -mile parts are in the route. Then write an equation.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Write $\frac{3}{8}$ as a multiple of $\frac{1}{8}$.	$\frac{3}{8} = 3 \times (\frac{1}{8})$
2	Write $\frac{5}{6}$ as a multiple of $\frac{1}{6}$.	$\frac{5}{6} = 5 \times (\frac{1}{6})$
3	Which expression equals $\frac{4}{10}$? A. $10 \times (\frac{1}{4})$ B. $4 \times (\frac{1}{10})$ C. $4 \times (\frac{1}{4})$	B. $4 \times (\frac{1}{10})$
4	Fill in the blank: $\underline{\hspace{1cm}} \times (\frac{1}{12}) = \frac{11}{12}$.	11
5	Write $\frac{8}{3}$ as a multiple of $\frac{1}{3}$.	$\frac{8}{3} = 8 \times (\frac{1}{3})$
6	What fraction is $2 \times (\frac{1}{5})$?	$\frac{2}{5}$

PART 2 • APPLY IT

- 5 sections; $\frac{5}{8} = 5 \times (\frac{1}{8})$** Each colored section is $\frac{1}{8}$, and Priya colors 5 equal sections. This is 5 copies of $\frac{1}{8}$.
- $\frac{6}{10} = 6 \times (\frac{1}{10})$** Jordan fills 6 unit parts, and each unit part is $\frac{1}{10}$. The numerator counts the 6 copies of $\frac{1}{10}$.

CHALLENGE

There are 13 parts of $\frac{1}{8}$ mile. $\frac{13}{8} = 13 \times (\frac{1}{8})$.

Accept equivalent multiplication forms with the factors reversed, such as $(\frac{1}{8}) \times 3$. Accept correct repeated-addition explanations when they clearly show the numerator as the number of unit fractions.