

Fraction Division Detective

Find how many unit-fraction pieces fit in a whole number.

GRADE 5 • NY-5.NF.7.b

NY-5.NF.7.b "Interpret division of a whole number by a unit fraction, and compute such quotients."

NAME _____

DATE _____

HOW MANY PIECES?

When you divide a whole number by a unit fraction, ask how many pieces of that fractional size fit in the whole. Each whole contains a number of unit-fraction pieces equal to the denominator, so multiply the whole number by the denominator.

WORKED EXAMPLE

Compute $3 \div \frac{1}{5}$.

1 whole 

1 whole 

1 whole 

1. One whole has 5 pieces of size $\frac{1}{5}$.

2. Three wholes have 3×5 pieces.

3. $3 \times 5 = 15$.

Answer: 15

PRACTICE 6 problems

1 Compute $4 \div \frac{1}{2}$.

ANSWER _____

2 How many pieces of size $\frac{1}{4}$ are in 6?

ANSWER _____

3 Compute $7 \div \frac{1}{6}$.

ANSWER _____

4 Compute $8 \div \frac{1}{7}$.

ANSWER _____

5 How many pieces of size $\frac{1}{8}$ are in 9?

ANSWER _____

6 Compute $10 \div \frac{1}{9}$.

ANSWER _____

APPLY IT Show your work

- 1** At a gaming club, 8 yards of cord are cut into pieces that are $\frac{1}{4}$ yard long. How many pieces of cord are made?

WORK SPACE

ANSWER _____

- 2** A community garden has 12 liters of compost tea. Each seedling gets $\frac{1}{6}$ liter. How many seedlings can get compost tea?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Kai says that $7 \div \frac{1}{6}$ equals $1 \frac{1}{6}$ because he divided 7 by 6. Is Kai correct? Write the correct quotient and explain why it is greater than 7.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Compute $4 \div 1/2$.	8
2	How many pieces of size $1/4$ are in 6?	24
3	Compute $7 \div 1/6$.	42
4	Compute $8 \div 1/7$.	56
5	How many pieces of size $1/8$ are in 9?	72
6	Compute $10 \div 1/9$.	90

PART 2 • APPLY IT

1. **32 pieces** Compute $8 \div 1/4$. Each yard has 4 fourth-yard pieces, so $8 \times 4 = 32$.
2. **72 seedlings** Compute $12 \div 1/6$. Each liter has 6 one-sixth-liter portions, so $12 \times 6 = 72$.

CHALLENGE

No. The correct quotient is 42. Each whole contains 6 pieces of size $1/6$, so 7 wholes contain $7 \times 6 = 42$ pieces.

Accept equivalent multiplication reasoning, such as $4 \times 6 = 24$ for $4 \div 1/6$. For the challenge, students should state that dividing by a fraction less than 1 gives more pieces than the number of wholes.