LESSON MAKER PRO

Fraction Sharing Puzzles

Use strips, bars, and equations to divide.

GRADE 5 · 5.NF.B.15.a

5.NF.B.15.a "Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions and illustrate using visual fraction models, drawings, and equations to represent the problem."

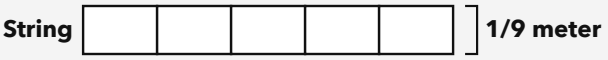
NAME _____ DATE _____

TWO WAYS TO DIVIDE

To share a unit fraction equally, split its one part into smaller equal parts. To divide whole numbers by a unit fraction, split each whole into pieces of that size and count them.

WORKED EXAMPLE

Share 1/9 of a meter of string equally among 5 people. How much does each person get?

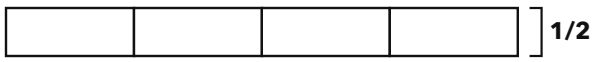


1. Start with the 1/9-meter strip.
2. Split it into 5 equal pieces, as shown.
3. Each piece is 1 of 9 times 5, or 45, equal pieces of a whole meter.
4. Write 1/9 ÷ 5 = 1/45.

Answer: Each person gets 1/45 meter.

PRACTICE 6 problems

1 Use the strip to find 1/2 ÷ 4.



ANSWER _____

2 Find 1/4 ÷ 2.

ANSWER _____

3 Find 1/6 ÷ 4.

ANSWER _____

4 How many 1/4 pieces fit in 2 wholes? Use the bars.

1 whole 

1 whole 

ANSWER _____

5 Find 4 ÷ 1/2.

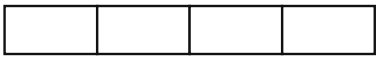
ANSWER _____

6 Find 2 ÷ 1/6.

ANSWER _____

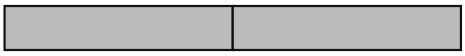
APPLY IT Show your work

1 For a game, four friends share a 1/8-meter strip of ribbon equally. How many meters does each friend get? Use the strip to write a division equation.

Ribbon  **1/8 meter**

ANSWER _____

2 At a class game night, 3 pizzas are left. Each player gets 1/2 pizza. How many players can get pizza? Use the bars to write a division equation.

Pizza 1 

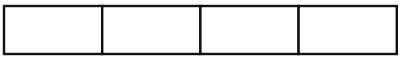
Pizza 2 

Pizza 3 

ANSWER _____

CHALLENGE One step up

The strip shows 1/3 of a whole shared equally by 4 people. Another student says each person gets 4/3 of the whole. Explain why that cannot be right, then write an equation for the correct share.

 **1/3 of a whole**

WORK SPACE AND ANSWER

ANSWER KEY

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the strip to find 1/2 ÷ 4.	**1/8**
2	Find 1/4 ÷ 2.	**1/8**
3	Find 1/6 ÷ 4.	**1/24**
4	How many 1/4 pieces fit in 2 wholes? Use the bars.	**8 pieces**
5	Find 4 ÷ 1/2.	**8**
6	Find 2 ÷ 1/6.	**12**

PART 2 · APPLY IT

1. **1/32 meter per friend** 1/8 ÷ 4 = 1/32. Each friend gets 1/32 meter.
2. **6 players** Each pizza has two halves, so 3 ÷ 1/2 = 6. Six players can each get one half.

CHALLENGE

Each share must be smaller than 1/3, but 4/3 is larger. The strip splits 1/3 into 4 equal parts, so 1/3 ÷ 4 = 1/12 of the whole per person.

Accept equivalent fractions and equations with the correct units where needed. For the challenge, accept any clear explanation that 4/3 is too large for one share.