LESSON MAKER PRO

Same Amount, Smaller Parts

Use fraction strips to find and explain equivalent fractions.

GRADE 4 · 4.NF.A.13

4.NF.A.13 "Using area and length fraction models, explain why one fraction is equivalent to another, taking into account that the number and size of the parts differ even though the two fractions themselves are the same size. a..."

NAME _____ DATE _____

THE BIG IDEA

When you split every part of a strip into the same number of smaller parts, the shaded length stays the same. Multiply the top and bottom numbers of a fraction by the same number to name that length with a new fraction.

WORKED EXAMPLE

The first strip shows 3/7. Each part is split into 2 smaller parts in the second strip. What fraction does the second strip show?

First strip



Second strip



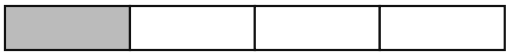
1. Each of the 7 parts becomes 2 parts: 7 × 2 = 14.
2. Each of the 3 shaded parts becomes 2 shaded parts: 3 × 2 = 6.
3. The shaded length stays the same.

Answer: 3/7 = 6/14.

PRACTICE 6 problems

1 Split each part of the strip into 2 equal parts in your mind. Complete: 1/4 = ___/8.

1/4



ANSWER _____

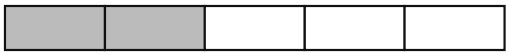
2 Imagine splitting each part into 3 equal parts. Complete: 2/3 = ___/9.

2/3



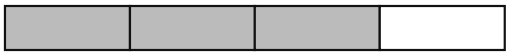
ANSWER _____

3 Imagine splitting each part into 3 equal parts. Complete: 2/5 = ___/15.

2/5 

ANSWER _____

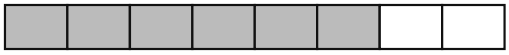
4 Complete: 3/4 = ___/12. How many smaller parts does each original part become?

3/4 

ANSWER _____

_____

5 Group the parts in pairs. Complete: 6/8 = ___/4. Are the new parts larger or smaller?

6/8 

ANSWER _____

_____

6 A student says these strips cannot show the same shaded length because strip B has more shaded pieces. Is the student correct? Explain.

Strip A 

Strip B 

ANSWER _____

_____

APPLY IT Show your work

1 Maya and Leo play the same game. Look at their progress bars. Have they finished the same part of the game? Explain how the number and size of the sections differ.

Maya



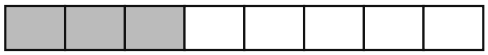
Leo



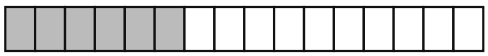
ANSWER _____

2 Jules and Kai each decorate an equal-length bookmark. Look at the colored parts of their bookmarks. Did they color the same length? Explain.

Jules



Kai

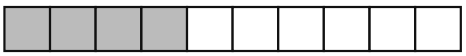


ANSWER _____

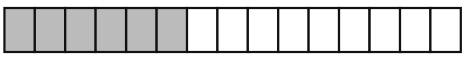
CHALLENGE One step up

Compare the shaded lengths in the two strips. Are they equal? Write a fraction with 5 equal parts that names the same length. Explain why all three fractions are equivalent.

Strip A



Strip B



WORK SPACE AND ANSWER

ANSWER KEY

Same Amount, Smaller Parts

GRADE 4 · 4.NF.A.13

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Split each part of the strip into 2 equal parts in your mind. Complete: 1/4 = ___/8.	**2**
2	Imagine splitting each part into 3 equal parts. Complete: 2/3 = ___/9.	**6**
3	Imagine splitting each part into 3 equal parts. Complete: 2/5 = ___/15.	**6**
4	Complete: 3/4 = ___/12. How many smaller parts does each original part become?	**9; each original part becomes 3 smaller parts.**
5	Group the parts in pairs. Complete: 6/8 = ___/4. Are the new parts larger or smaller?	**3; the new parts are larger.**
6	A student says these strips cannot show the same shaded length because strip B has more shaded pieces. Is the student correct? Explain.	**No. Both strips show the same shaded length. Strip B has more shaded pieces, but each piece is smaller.**

PART 2 · APPLY IT

1. **Yes. Maya has finished 3/5, and Leo has finished 9/15. Leo's bar has 3 times as many sections, but each section is 1/3 as large.** Each of Maya's 5 sections matches 3 of Leo's 15 sections. Thus 3/5 = 9/15.
2. **Yes. Jules colored 3/8, and Kai colored 6/16. Kai has twice as many colored parts, but each part is half as large.** Splitting each eighth into 2 equal parts changes 3 shaded parts into 6 shaded parts. Thus 3/8 = 6/16.

CHALLENGE

Yes. The fraction is 2/5. In strip A, each pair of parts makes one fifth, so 4/10 = 2/5. In strip B, each group of 3 parts makes one fifth, so 6/15 = 2/5. All three show the same shaded length.

For written explanations, accept wording that identifies the same shaded length and explains that more equal parts are smaller. In the challenge, students must give 2/5 and connect it to both strips.