LESSON MAKER PRO

Fraction Piece Power

Build totals with equal fractional pieces.

GRADE 4 · 4.CE.3.c

4.CE.3.c "Solve single-step contextual problems involving multiplication of a whole number, limited to 12 or less, and a unit fraction (e.g., 6 × 1/3, 1/5 × 8, 2 × 1/10), with models.*"

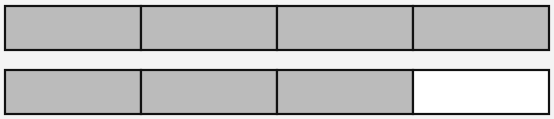
NAME _____ **DATE** _____

ADD UNIT PIECES

A unit fraction has 1 as its numerator. When you multiply a whole number by a unit fraction, add that unit fraction the same number of times. Keep the pieces the same size, then rename a fraction greater than 1 as a mixed number when needed. Every same-size strip represents one whole; all cells within a strip are equal. Use the strip models to connect the equal pieces to each product.

WORKED EXAMPLE

Solve 7 × 1/4.



1. Show seven unit pieces: 1/4 + 1/4 + 1/4 + 1/4 + 1/4 + 1/4 + 1/4.
2. Add the numerators: 7/4.
3. Rename 7/4 as 1 3/4.

Answer: 1 3/4

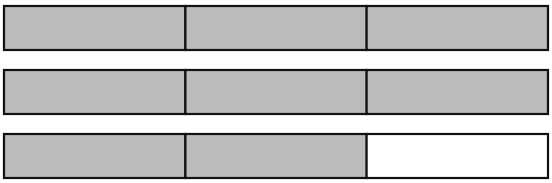
PRACTICE 6 problems

1 Use the shaded strip model: 1/5 + 1/5 + 1/5. What is 3 × 1/5?



ANSWER _____

2 Use the shaded strip model: 8 equal pieces, each with a length of 1/3. Write 8 × 1/3 as a mixed number.



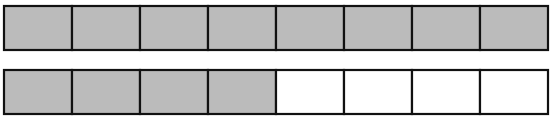
ANSWER _____

3 Use the shaded strip model: 6 groups of 1/10. Solve 6 × 1/10.



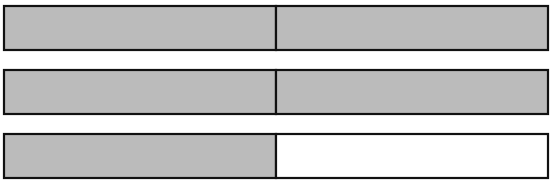
ANSWER _____

4 Use the shaded strip model: 12 pieces, each 1/8 of a whole. What mixed number is 12 × 1/8?



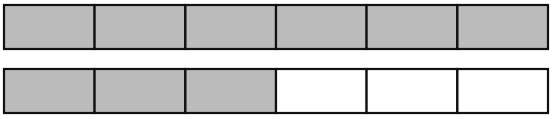
ANSWER _____

5 Use the shaded strip model: 5 pieces, each 1/2 of a whole. What mixed number is 5 × 1/2?



ANSWER _____

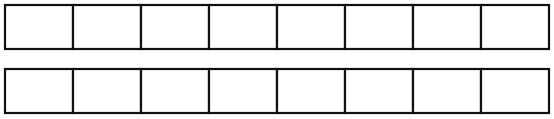
6 Use the shaded strip model: 9 groups of 1/6. What mixed number is 9 × 1/6?



ANSWER _____

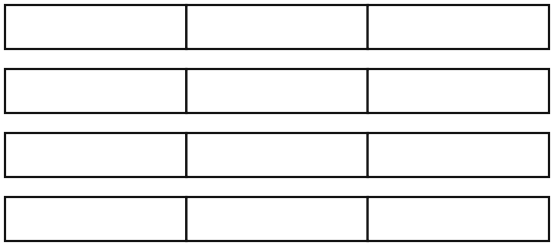
APPLY IT Show your work

1 Riley's fitness watch records 1/8 mile for each lap around a short track. Riley runs 11 laps. How many miles does Riley run? Each blank strip represents one mile; each of its 8 equal cells represents 1/8 mile. Shade one cell for each lap, continuing on the second strip after filling the first. Use your completed model to find the total distance.



ANSWER _____

2 A game app gives 1/3 of a star for each daily puzzle finished. Mei finishes 10 daily puzzles. How many stars does Mei earn? Each blank strip represents one star; each of its 3 equal cells represents 1/3 star. Shade one cell for each completed puzzle, continuing on the next strip when a strip is full. Use your completed model to find the total stars.



ANSWER _____

CHALLENGE One step up

Which product is greater, 10 × 1/12 or 8 × 1/10? Explain how you know.

WORK SPACE AND ANSWER

ANSWER KEY

Fraction Piece Power

GRADE 4 · 4.CE.3.c

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Use the shaded strip model: 1/5 + 1/5 + 1/5. What is 3 × 1/5?	**3/5**
2	Use the shaded strip model: 8 equal pieces, each with a length of 1/3. Write 8 × 1/3 as a mixed number.	**2 2/3**
3	Use the shaded strip model: 6 groups of 1/10. Solve 6 × 1/10.	**3/5**
4	Use the shaded strip model: 12 pieces, each 1/8 of a whole. What mixed number is 12 × 1/8?	**1 1/2**
5	Use the shaded strip model: 5 pieces, each 1/2 of a whole. What mixed number is 5 × 1/2?	**2 1/2**
6	Use the shaded strip model: 9 groups of 1/6. What mixed number is 9 × 1/6?	**1 1/2**

PART 2 · APPLY IT

1. **1 3/8 miles** Add eleven 1/8-mile pieces to make 11/8 mile. Rename 11/8 as 1 3/8. Require an actual model with the first strip fully shaded and 3 cells shaded in the second; 11 shaded eighth-mile cells altogether.
2. **3 1/3 stars** Ten groups of 1/3 make 10/3 stars. Rename 10/3 as 3 1/3. Require an actual model with 3 full strips and 1 cell of the fourth shaded; 10 shaded third-star cells altogether.

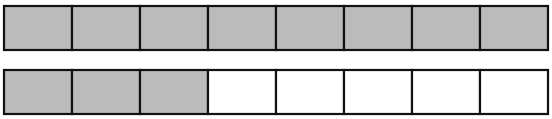
CHALLENGE

10 × 1/12 is greater. It equals 5/6, while 8 × 1/10 equals 4/5. Since 1/6 is smaller than 1/5, 5/6 is closer to 1 than 4/5.

Accept equivalent fractions and improper fractions when they have the same value, such as 12/8 for 1 1/2. For the challenge, accept a correct comparison with a clear fraction-based explanation. For both applications, check the actual learner-shaded equal-cell model as well as the multiplication and total. All strips in each model use the same-size whole; no cell changes size when the count crosses one whole.

Fraction Piece Power

Apply 1: each strip is one mile. Eleven shaded eighth-mile cells give 1 3/8 miles.



Fraction Piece Power

Apply 2: each strip is one star. Ten shaded third-star cells give 3 1/3 stars.

