LESSON MAKER PRO

Fraction Power Moves

Multiply and divide fractions in more than one way.

GRADE 6 · 6.CE.1.a

6.CE.1.a "Demonstrate/model multiplication and division of fractions (proper or improper) and mixed numbers using multiple representations.*"

NAME _____ DATE _____

MODEL THE OPERATION

To multiply fractions, change mixed numbers to improper fractions, then multiply numerators and denominators. To divide fractions, change division to multiplication and multiply by the reciprocal, then simplify. A fraction model can show part of a group for multiplication or the number of equal-size groups for division.

WORKED EXAMPLE

$3/4 \div 1/8 = ?$

One whole

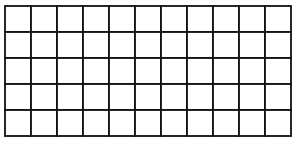


1. The whole bar has eight equal parts; six shaded eighths equal 3/4.
2. Count how many 1/8-size groups fit in the shaded amount: six.
3. Check: $6 \times 1/8 = 6/8 = 3/4$.

Answer: 6 groups

PRACTICE 6 problems

1 Find $3/5 \times 4/11$. In the whole rectangle, shade 3 of 5 rows one way and 4 of 11 columns another way. Use the overlap to explain the product.



ANSWER _____

_____

2 $5/6 \div 2/3$

ANSWER _____

3 1 1/2 × 2/5

ANSWER _____

4 Find 7/8 ÷ 1 3/4. Draw a bar for one 1 3/4-size group. Mark 7/8 of the original unit on that bar. What fraction of the group is it?

_____

5 3 1/3 × 3/10

ANSWER _____

6 4 1/6 ÷ 5/12

ANSWER _____

APPLY IT Show your work

1 A video club has 3 1/2 hours of footage. Each episode segment is 5/6 hour long. How many segment-lengths of footage does the club have?

2 At a coding camp, Leo spends 3 3/4 hours on a game project each day for 2 2/5 days. How many hours does he spend on the project?

CHALLENGE One step up

A student says that 3/4 ÷ 2/5 = 6/20. Is the student correct? Use an equation to explain the error and find the correct quotient.

ANSWER KEY

Fraction Power Moves

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find 3/5 × 4/11. In the whole rectangle, shade 3 of 5 rows one way and 4 of 11 columns another way. Use the overlap to explain the product.	**12/55; 12 overlapping cells out of 55 equal cells in one whole.**
2	5/6 ÷ 2/3	**1 1/4**
3	1 1/2 × 2/5	**3/5**
4	Find 7/8 ÷ 1 3/4. Draw a bar for one 1 3/4-size group. Mark 7/8 of the original unit on that bar. What fraction of the group is it?	**1/2; a 1 3/4-size group is 14 eighths, and 7 eighths occupies half of that group.**
5	3 1/3 × 3/10	**1**
6	4 1/6 ÷ 5/12	**10**

PART 2 · APPLY IT

1. **4 1/5 segment-lengths** Change 3 1/2 to 7/2, then divide by multiplying by the reciprocal: 7/2 × 6/5 = 21/5 = 4 1/5.
2. **9 hours** Change the mixed numbers to 15/4 and 12/5, then multiply: 15/4 × 12/5 = 9.

CHALLENGE

No. Dividing by 2/5 means multiplying by 5/2: 3/4 × 5/2 = 15/8 = 1 7/8. The result 6/20 comes from multiplying straight across, not dividing.

Accept equivalent fractions and improper fractions or mixed numbers when they have the same value. For the model items, accept accurate tape diagrams, area models, fraction bars, or equal-group sketches that match the equation. Model 1: partition one whole into 55 equal cells, with 12 in the overlap. Model 4: distinguish the original unit from a full 14-eighth-size group; seven eighths is half of that group. Do not label seven eighths as half of the original unit.