

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

$$2\frac{3}{7} \times \frac{7}{9}$$

1. Model it as $\frac{7}{9}$ of $\frac{17}{7}$, which is 17 ninths.
2. Change $2\frac{3}{7}$ to $\frac{17}{7}$.
3. Multiply: $\frac{17}{7} \times \frac{7}{9} = \frac{17}{9}$.
4. Regroup: $\frac{17}{9} = 1\frac{8}{9}$.

Answer: $1\frac{8}{9}$

PRACTICE 6 problems

- 1** Find the product. For #1 and #4, show both an equation and a quick fraction model. $\frac{3}{5} \times \frac{4}{11}$

ANSWER _____

- 2** $\frac{5}{6} \div \frac{2}{3}$

ANSWER _____

- 3** $1\frac{1}{2} \times \frac{2}{5}$

ANSWER _____

- 4** $\frac{7}{8} \div 1\frac{3}{4}$

ANSWER _____

- 5** $3\frac{1}{3} \times \frac{3}{10}$

ANSWER _____

- 6** $4\frac{1}{6} \div \frac{5}{12}$

ANSWER _____

APPLY IT Show your work

- 1** A video club has $3\frac{1}{2}$ hours of footage. Each episode segment is $\frac{5}{6}$ hour long. How many segment-lengths of footage does the club have?

WORK SPACE

ANSWER _____

- 2** At a coding camp, Leo spends $3\frac{3}{4}$ hours on a game project each day for $2\frac{2}{5}$ days. How many hours does he spend on the project?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A student says that $\frac{3}{4} \div \frac{2}{5} = \frac{6}{20}$. Is the student correct? Use an equation to explain the error and find the correct quotient.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the product. For #1 and #4, show both an equation and a quick fraction model. $\frac{3}{5} \times \frac{4}{11}$	12/55
2	$\frac{5}{6} \div \frac{2}{3}$	1 1/4
3	$1 \frac{1}{2} \times \frac{2}{5}$	3/5
4	$\frac{7}{8} \div 1 \frac{3}{4}$	1/2
5	$3 \frac{1}{3} \times \frac{3}{10}$	1
6	$4 \frac{1}{6} \div \frac{5}{12}$	10

PART 2 • APPLY IT

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

CHALLENGE

No. Dividing by $\frac{2}{5}$ means multiplying by $\frac{5}{2}$: $\frac{3}{4} \times \frac{5}{2} = \frac{15}{8} = 1 \frac{7}{8}$. The result $\frac{6}{20}$ 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.