

Fraction Group Power

Use equal groups to multiply fractions.

GRADE 5 • 5.CE.2.d

5.CE.2.d "Solve single-step contextual problems involving multiplication of a whole number, limited to 12 or less, and a proper fraction (e.g., $9 \times \frac{2}{3}$, $8 \times \frac{3}{4}$), with models..."

NAME _____

DATE _____

BUILD WHOLE GROUPS

Multiplication tells how much is in equal groups. Use the denominator to group the fractions into sets. One complete set makes the numerator number of wholes, then count the sets.

WORKED EXAMPLE

Find $12 \times \frac{5}{6}$.

1. Model: $[\frac{5}{6}] [\frac{5}{6}] [\frac{5}{6}] [\frac{5}{6}] [\frac{5}{6}] [\frac{5}{6}]$
makes 5 wholes.
2. Make a second matching group of 6 copies.
3. 5 wholes + 5 wholes = 10 wholes.

Answer: 10

PRACTICE 6 problems

1 Find $2 \times \frac{1}{2}$. Model: $[\frac{1}{2}] [\frac{1}{2}]$.

ANSWER _____

2 Find $3 \times \frac{2}{3}$. Model: $[\frac{2}{3}] [\frac{2}{3}] [\frac{2}{3}]$.

ANSWER _____

3 Find $4 \times \frac{3}{4}$. Model: $[\frac{3}{4}] [\frac{3}{4}] [\frac{3}{4}] [\frac{3}{4}]$.

ANSWER _____

4 Find $8 \times \frac{1}{4}$. Model: $[\frac{1}{4}] [\frac{1}{4}] [\frac{1}{4}] [\frac{1}{4}] |$
 $[\frac{1}{4}] [\frac{1}{4}] [\frac{1}{4}] [\frac{1}{4}]$.

ANSWER _____

5 Find $9 \times \frac{1}{3}$. Model: $[\frac{1}{3}] [\frac{1}{3}] [\frac{1}{3}] |$
 $[\frac{1}{3}] [\frac{1}{3}] |$
 $[\frac{1}{3}] [\frac{1}{3}] [\frac{1}{3}]$.

ANSWER _____

6 Find $11 \times \frac{7}{11}$. Model: $[\frac{7}{11}] [\frac{7}{11}] [\frac{7}{11}]$
 $[\frac{7}{11}] [\frac{7}{11}] [\frac{7}{11}] [\frac{7}{11}] [\frac{7}{11}] [\frac{7}{11}]$
 $[\frac{7}{11}] [\frac{7}{11}]$.

ANSWER _____

APPLY IT Show your work

- 1** Kai practices a new skateboard trick for $\frac{4}{7}$ hour on each of 7 days. How many hours does Kai practice altogether?

WORK SPACE

ANSWER _____

- 2** For an art show, 9 posters each need $\frac{4}{9}$ meter of ribbon. How many meters of ribbon are needed?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Nora says that $9 \times \frac{7}{9}$ equals 7. Explain why she is right by using equal groups.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find $2 \times \frac{1}{2}$. Model: $[\frac{1}{2}][\frac{1}{2}]$.	1
2	Find $3 \times \frac{2}{3}$. Model: $[\frac{2}{3}][\frac{2}{3}][\frac{2}{3}]$.	2
3	Find $4 \times \frac{3}{4}$. Model: $[\frac{3}{4}][\frac{3}{4}][\frac{3}{4}][\frac{3}{4}]$.	3
4	Find $8 \times \frac{1}{4}$. Model: $[\frac{1}{4}][\frac{1}{4}][\frac{1}{4}][\frac{1}{4}] [\frac{1}{4}][\frac{1}{4}][\frac{1}{4}][\frac{1}{4}]$.	2
5	Find $9 \times \frac{1}{3}$. Model: $[\frac{1}{3}][\frac{1}{3}][\frac{1}{3}] [\frac{1}{3}][\frac{1}{3}][\frac{1}{3}] [\frac{1}{3}][\frac{1}{3}][\frac{1}{3}]$.	3
6	Find $11 \times \frac{7}{11}$. Model: $[\frac{7}{11}][\frac{7}{11}][\frac{7}{11}][\frac{7}{11}][\frac{7}{11}] [\frac{7}{11}][\frac{7}{11}][\frac{7}{11}][\frac{7}{11}][\frac{7}{11}]$.	7

PART 2 • APPLY IT

- 4 hours** Multiply $7 \times \frac{4}{7}$. Seven copies of $\frac{4}{7}$ make 4 whole hours.
- 4 meters** Multiply $9 \times \frac{4}{9}$. Nine copies of $\frac{4}{9}$ make 4 whole meters.

CHALLENGE

Nine copies of $\frac{7}{9}$ equal 7 wholes because nine copies of $\frac{1}{9}$ make 1 whole.

Accept a correct equal-groups or fraction-strip model. Answers should be written as whole numbers in simplest form.