

Fraction Effect Lab

See how fractions between zero and one change numbers.

GRADE 6 • 6.CE.1.c

6.CE.1.c "Investigate and explain the effect of multiplying or dividing a fraction, whole number, or mixed number by a number between zero and one.*"

NAME _____

DATE _____

THE BIG IDEA

When you multiply a positive number by a fraction between zero and one, the product is smaller than the starting number. When you divide a positive number by a fraction between zero and one, the quotient is greater than the starting number.

WORKED EXAMPLE

Divide $7/10$ by $2/5$. How does the quotient compare with $7/10$?

1. $7/10 \div 2/5 = 7/10 \times 5/2$

2. $7/10 \times 5/2 = 35/20$

3. $35/20 = 7/4$

Answer: $7/4$, which is greater than $7/10$.

PRACTICE 6 problems

- 1** Multiply $3/4 \times 1/2$. Is the product greater or less than $3/4$?

ANSWER _____

- 2** Divide $5/6 \div 1/3$. Is the quotient greater or less than $5/6$?

ANSWER _____

- 3** Multiply $8 \times 3/8$. Is the product greater or less than 8?

ANSWER _____

- 4** Multiply $1 \frac{1}{2} \times 2/3$. Is the product greater or less than $1 \frac{1}{2}$?

ANSWER _____

- 5** Divide $2/3 \div 1/6$. Is the quotient greater or less than $2/3$?

ANSWER _____

- 6** Divide $1 \frac{1}{5} \div 3/5$. Is the quotient greater or less than $1 \frac{1}{5}$?

ANSWER _____

APPLY IT Show your work

- 1** At robotics club, a spool has $2\frac{1}{2}$ meters of wire. The club uses $\frac{3}{5}$ of the wire for a sensor. How many meters of wire does the club use? Is that amount greater or less than the amount on the spool?

WORK SPACE

ANSWER _____

- 2** A video creator has $\frac{3}{4}$ gigabyte of storage left. Each short video clip uses $\frac{1}{8}$ gigabyte. How many clips can fit in the remaining storage?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A $3\frac{1}{3}$ -pound bag of trail mix is divided into portions of $\frac{2}{3}$ pound each. How many portions can be made? Explain why the number of portions is greater than $3\frac{1}{3}$.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Multiply $3/4 \times 1/2$. Is the product greater or less than $3/4$?	$3/8$, less than $3/4$
2	Divide $5/6 \div 1/3$. Is the quotient greater or less than $5/6$?	$5/2$, greater than $5/6$
3	Multiply $8 \times 3/8$. Is the product greater or less than 8?	3, less than 8
4	Multiply $1\ 1/2 \times 2/3$. Is the product greater or less than $1\ 1/2$?	1, less than $1\ 1/2$
5	Divide $2/3 \div 1/6$. Is the quotient greater or less than $2/3$?	4, greater than $2/3$
6	Divide $1\ 1/5 \div 3/5$. Is the quotient greater or less than $1\ 1/5$?	2, greater than $1\ 1/5$

PART 2 • APPLY IT

- $1\ 1/2$ meters, less than the amount on the spool** Multiply $2\ 1/2$ by $3/5$: $5/2 \times 3/5 = 3/2 = 1\ 1/2$. Multiplying by $3/5$ makes the amount smaller.
- 6 clips** Divide $3/4$ by $1/8$: $3/4 \times 8/1 = 6$. Dividing by a fraction less than one gives a quotient greater than $3/4$.

CHALLENGE

5 portions. $3\ 1/3 \div 2/3 = 10/3 \times 3/2 = 5$. The quotient is greater because dividing a positive number by $2/3$, a number between zero and one, makes the result larger.

Accept equivalent fractions and mixed numbers, such as $5/2$ or $2\ 1/2$. For comparison statements, accept “smaller” for less than and “larger” for greater than.