

Flip and Multiply

Turn division by a fraction into multiplication.

GRADE 6 • TEKS 6.3.A

6.3.A "recognize that dividing by a rational number and multiplying by its reciprocal result in equivalent values;"

NAME _____

DATE _____

USE THE RECIPROCAL

To divide by a nonzero rational number, multiply by its reciprocal. The reciprocal swaps the numerator and denominator, while the sign stays with the number. Then multiply and simplify.

WORKED EXAMPLE

$$17/19 \div (-23/29)$$

1. Keep 17/19.
2. Multiply by the reciprocal of -23/29, which is -29/23.
3. $17/19 \times (-29/23) = -493/437$.
4. The fraction is already simplified.

Answer: -493/437

PRACTICE 6 problems

1 Find the quotient: $3/5 \div 7/10$

ANSWER _____

2 Find the quotient: $-5/12 \div 3/8$

ANSWER _____

3 Find the quotient: $11/6 \div (-2/9)$

ANSWER _____

4 Find the quotient: $-7/15 \div (-14/25)$

ANSWER _____

5 Find the quotient: $2 \frac{1}{4} \div 3/5$

ANSWER _____

6 Find the quotient: $-1 \frac{1}{2} \div 4/7$

ANSWER _____

APPLY IT Show your work

- 1** At a school esports event, $5\frac{1}{4}$ yards of cable are available. Each gaming setup needs $\frac{3}{8}$ yard of cable. How many setups can use the cable?

WORK SPACE

ANSWER _____

- 2** A downloaded episode uses $\frac{3}{8}$ gigabyte of data. A phone has $3\frac{3}{4}$ gigabytes of data available for downloads. How many episodes can be downloaded?

WORK SPACE

ANSWER _____

CHALLENGE One step up

Solve for x . Then explain how multiplying by a reciprocal helps you solve it: $x \div (-\frac{3}{4}) = 2\frac{2}{5}$.

WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the quotient: $3/5 \div 7/10$	$6/7$
2	Find the quotient: $-5/12 \div 3/8$	$-10/9$
3	Find the quotient: $11/6 \div (-2/9)$	$-33/4$
4	Find the quotient: $-7/15 \div (-14/25)$	$5/6$
5	Find the quotient: $2 \frac{1}{4} \div 3/5$	$15/4$
6	Find the quotient: $-1 \frac{1}{2} \div 4/7$	$-21/8$

PART 2 • APPLY IT

1. **14 setups** Rewrite $5 \frac{1}{4}$ as $21/4$. Then multiply $21/4$ by the reciprocal of $3/8$, which is $8/3$, to get 14.
2. **10 episodes** Rewrite $3 \frac{3}{4}$ as $15/4$. Then multiply $15/4$ by the reciprocal of $3/8$, which is $8/3$, to get 10.

CHALLENGE

$x = -9/5$.

Accept equivalent simplified forms, including $3 \frac{3}{4}$ for $15/4$ and $-2 \frac{5}{8}$ for $-21/8$. For the challenge, accept an explanation that correctly states that multiplication by $-3/4$ undoes division by $-3/4$.