

Dividing Fractions and Mixed Numbers

(pages 305–307)

To divide by a fraction, multiply by its multiplicative inverse or reciprocal.

Dividing by a Fraction

You can rewrite $\frac{a}{b} \div \frac{c}{d}$ as $\frac{a}{b} \times \frac{d}{c}$, where b , c , and $d \neq 0$.

EXAMPLES

A Find $\frac{2}{7} \div \frac{3}{5}$.

$$\begin{aligned} \frac{2}{7} \div \frac{3}{5} &= \frac{2}{7} \times \frac{5}{3} \\ &= \frac{10}{21} \end{aligned}$$

$\frac{5}{3}$ is the multiplicative inverse of $\frac{3}{5}$.

Multiply.

B Find $3\frac{1}{2} \div 5\frac{4}{9}$.

$$\begin{aligned} 3\frac{1}{2} \div 5\frac{4}{9} &= \frac{7}{2} \div \frac{49}{9} \\ &= \frac{\cancel{7}^1}{2} \times \frac{9}{\cancel{49}_7} \\ &= \frac{9}{14} \end{aligned}$$

Rewrite the improper fractions as mixed numbers.

The GCF of 7 and 49 is 7.

Multiply.

Try These Together

1. Find $\frac{3}{8} \div 3$.

HINT: Rewrite $\div 3$ as $\times \frac{1}{3}$.

2. Find $\frac{2}{5} \div \frac{2}{3}$.

HINT: Rewrite $\div \frac{2}{3}$ as $\times \frac{3}{2}$.

PRACTICE

Divide. Write each quotient in simplest form.

3. $\frac{5}{7} \div \frac{4}{7}$

4. $\frac{8}{11} \div \frac{3}{4}$

5. $\frac{4}{5} \div 2\frac{2}{3}$

6. $4\frac{4}{7} \div \frac{4}{5}$

Solve each equation.

7. $r = \frac{4}{7} \div 2$

8. $\frac{8}{9} \div 3\frac{1}{4} = s$

9. $t = \frac{5}{6} \div \frac{2}{3}$

10. $w = \frac{1}{3} \div \frac{1}{2}$



- 11. Standardized Test Practice** Taina has $3\frac{1}{9}$ yards of material that she wants to split into 4 pieces of equal length for a project. How long will each piece be?

A $\frac{7}{9}$ yd

B $1\frac{2}{7}$ yd

C $3\frac{1}{36}$ yd

D $\frac{3}{4}$ yd

Answers: 1. $\frac{8}{1}$ 2. $\frac{3}{2}$ 3. $1\frac{1}{4}$ 4. $\frac{33}{32}$ 5. $\frac{10}{3}$ 6. $5\frac{7}{5}$ 7. $\frac{7}{2}$ 8. $\frac{117}{32}$ 9. $1\frac{1}{4}$ 10. $\frac{3}{2}$ 11. A