Dividing Fractions

Unit 2 Lesson 1

Math 6

Students will be able to:

Interpret and compute quotients of fractions.

Solve word problems involving division of fractions by fractions.

Key Vocabulary:

Fraction

Divisor

Dividend

Quotient

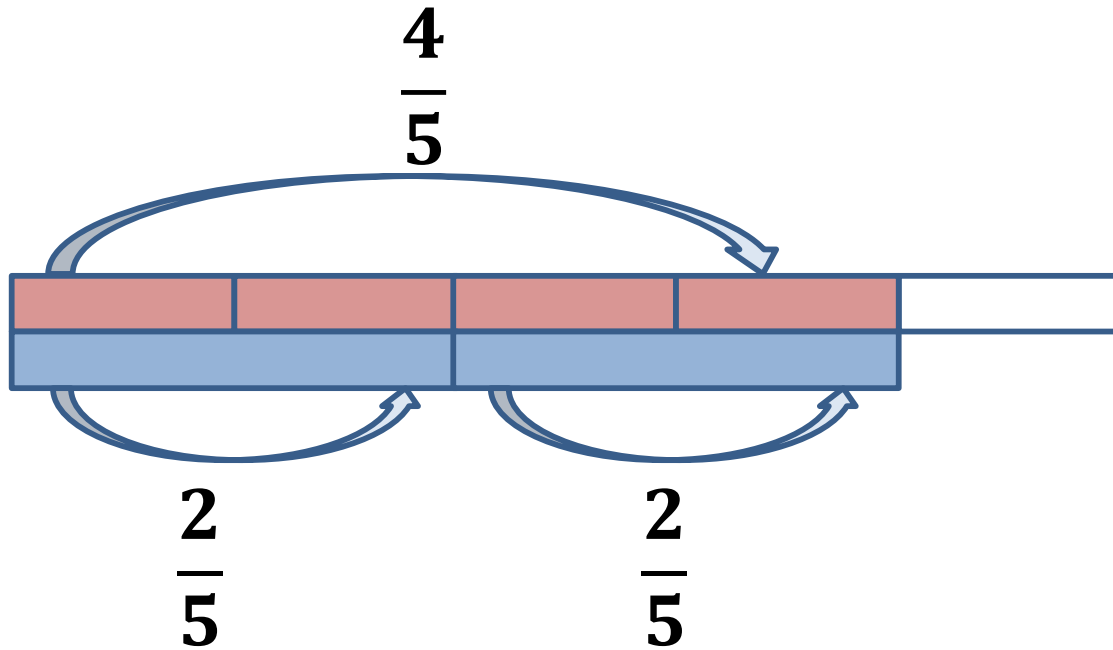Dividing by a fraction is the same as multiplying by its reciprocal.

To divide fractions take the reciprocal (invert the fraction) of the divisor and multiply the dividend.

Division rule of two fractions

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} * \frac{d}{c} = \frac{a*d}{b*c}.$$

Dividing Fractions

Example: **_How many units of $\frac{2}{5}$ can you see in $\frac{4}{5}$?_**

$$\frac{4}{5}$$

$$\frac{2}{5} \qquad \frac{2}{5}$$

MathTeacherCoach.com

Dividing Fractions

Example: *How many units of $\frac{2}{5}$ can you see in $\frac{4}{5}$?*

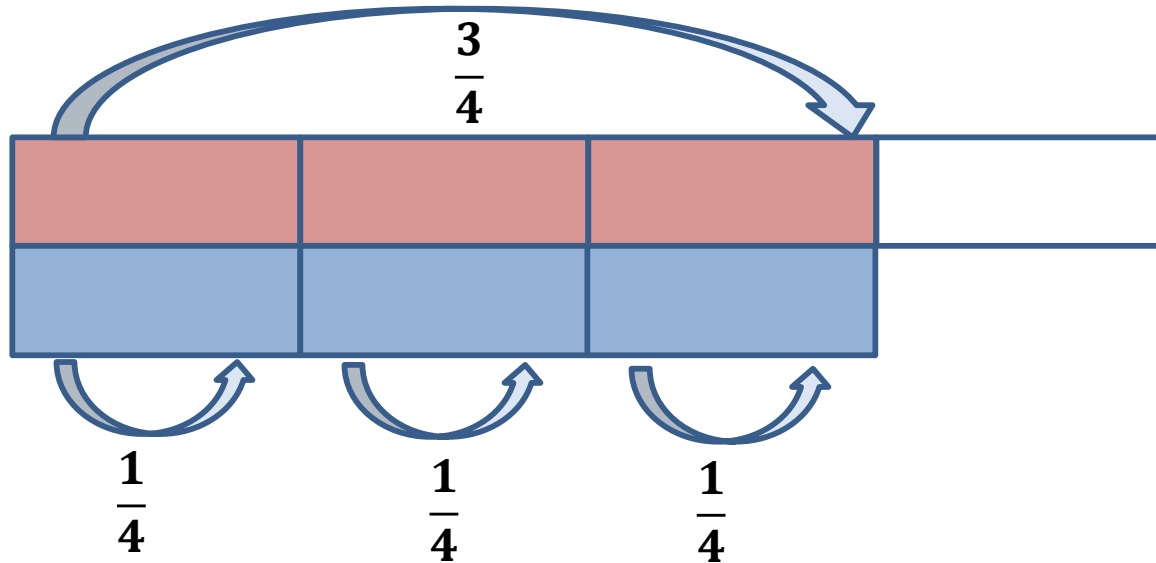$$\frac{4}{5} \div \frac{2}{5} = \frac{4}{5} * \frac{5}{2} = \frac{4 * \textcolor{red}{5}}{\textcolor{red}{5} * 2} = \frac{4}{2} = 2 \; units$$

Sample Problem 1: Draw a model to solve.

a.   How many units of $\frac{1}{4}$ can you see in $\frac{3}{4}$?

Sample Problem 1: Draw a model to solve.

a.   How many units of $\dfrac{1}{4}$ can you see in $\dfrac{3}{4}$?

Sample Problem 1: Draw a model to solve.

a.   **How many units of $\frac{1}{4}$ can you see in $\frac{3}{4}$?**

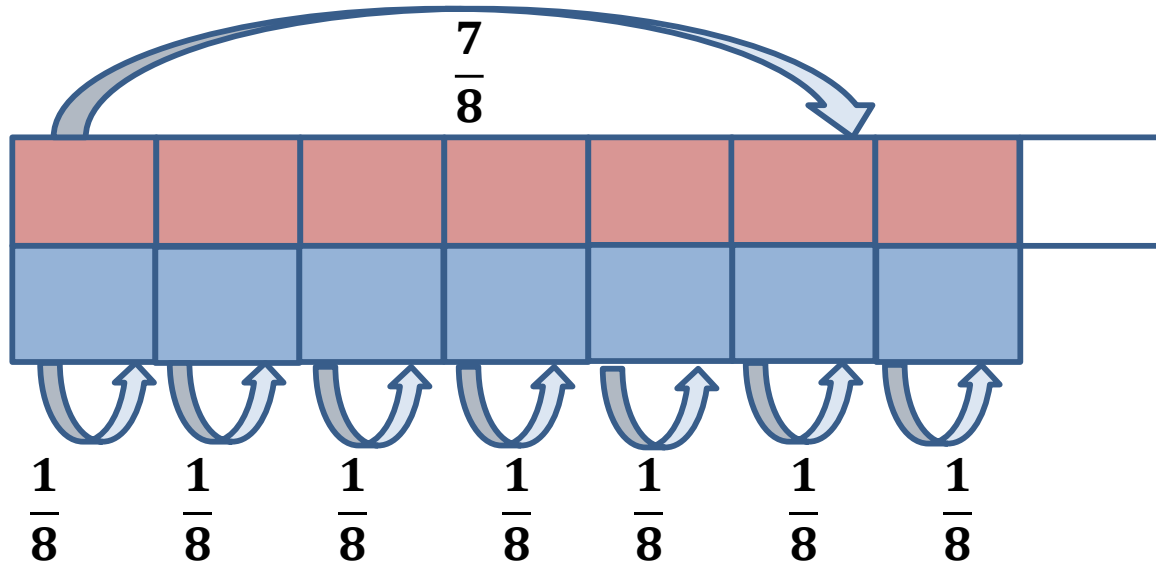$$\frac{3}{4} \div \frac{1}{4} = \frac{3}{4} * \frac{4}{1} = \frac{3*4}{4*1} = 3 \; units$$

MathTeacherCoach.com

Sample Problem 1: Draw a model to solve.

b.   How many units of $\frac{1}{8}$ can you see in $\frac{7}{8}$?

Sample Problem 1: Draw a model to solve.

b.   How many units of $\frac{1}{8}$ can you see in $\frac{7}{8}$?

Sample Problem 1: Draw a model to solve.

b. How many units of $\dfrac{1}{8}$ can you see in $\dfrac{7}{8}$?

$$\dfrac{7}{8} \div \dfrac{1}{8} = \dfrac{7}{8} * \dfrac{8}{1} = \dfrac{7 * 8}{8 * 1} = 7 \; units$$

MathTeacherCoach.com

Sample Problem 2: Find each quotient.

a. $\dfrac{2}{3} \div \dfrac{1}{2} =$

Dividing Fractions

Sample Problem 2: Find each quotient.

a. $\dfrac{2}{3} \div \dfrac{1}{2} = \dfrac{2}{3} * \dfrac{2}{1} = \dfrac{2*2}{3*1} = \dfrac{4}{3}$

MathTeacherCoach.com

Sample Problem 2: Find each quotient.

b. $\dfrac{1}{4} \div \dfrac{2}{4} =$

Sample Problem 2: Find each quotient.

b. $\dfrac{1}{4} \div \dfrac{2}{4} = \dfrac{1}{4} * \dfrac{4}{2} = \dfrac{1*4}{4*2} = \dfrac{1}{2}$

Sample Problem 2: Find each quotient.

c. $\dfrac{1}{3} \div \dfrac{2}{9} =$

Sample Problem 2: Find each quotient.

c. $\dfrac{1}{3} \div \dfrac{2}{9} = \dfrac{1}{3} * \dfrac{9}{2} = \dfrac{1*9}{3*2} = \dfrac{3}{2}$

Sample Problem 2: Find each quotient.

d. $\dfrac{1}{2} \div \dfrac{3}{4} =$

Sample Problem 2: Find each quotient.

d. $\dfrac{1}{2} \div \dfrac{3}{4} = \dfrac{1}{2} * \dfrac{4}{3} = \dfrac{1 * 4}{2 * 3} = \dfrac{2}{3}$

Sample Problem 3: Solve each problem.

a. Diana has $\dfrac{1}{3}$ of a bag of dog food. Her dog eats $\dfrac{1}{6}$ of a bag per week. How many weeks will the food last?

MathTeacherCoach.com

Sample Problem 3: Solve each problem.

a. Diana has $\dfrac{1}{3}$ of a bag of dog food. Her dog eats $\dfrac{1}{6}$ of a bag per week. How many weeks will the food last?

$$\frac{1}{3} \div \frac{1}{6} = \frac{1}{3} * \frac{6}{1} = \frac{1 * 6}{3 * 1} = 2$$

2 weeks

MathTeacherCoach.com

Sample Problem 3: **Solve each problem.**

b. **How many halves are there in six-fourth?**

Sample Problem 3: Solve each problem.

b. **How many halves are there in six-fourth?**

$$\frac{6}{4} \div \frac{1}{2} = \frac{6}{4} * \frac{2}{1} = \frac{6 * 2}{4 * 1} = \frac{6 * 2}{2 * 2 * 1} = \frac{6}{2}$$

There are 6 halves in six-fourth.