

Spotlight On: Problem Solving

Throughout this course, students have been learning many different ways to solve problems. Having this flexibility can transfer to many other situations where they will need to use critical thinking skills to solve problems. This chapter presents multiple ways to think about division and students are encouraged to consider which methods make the most sense to them.

The Big Picture

Growing From

Adding and subtracting rational numbers;
Representing a quotient with a remainder

Working On

Long division;
Dividing fractions

Growing To

Solving real-world problems with rational expressions

Need Help?

Methods & Meanings boxes are included in the Mathematician's Notebook as reference.

7.1.3: Dividing

7.2.6: Multiplicative Inverses and Reciprocals

Current Topics

In this chapter, students will learn about division with fractions and decimals. The early lessons in this chapter have students make sense of fraction division in a context in order to help them develop their understanding before thinking about it abstractly.

Whole Number and Decimal Division (Section 7.1)

In the mathematical sentence, $52 \div 3 = 17\frac{1}{3}$, 52 is called the dividend, 3 is the divisor, $17\frac{1}{3}$ is the quotient, where $\frac{1}{3}$ is the $\frac{\text{remainder}}{\text{divisor}}$. Students learn the standard long division algorithm by using repeated subtraction to mimic repeated addition that students used to understand multiplication.

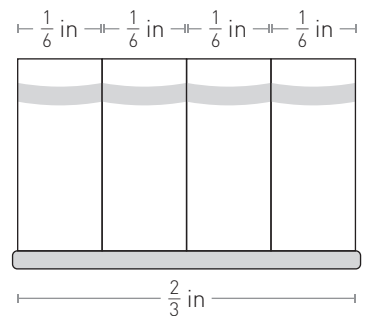
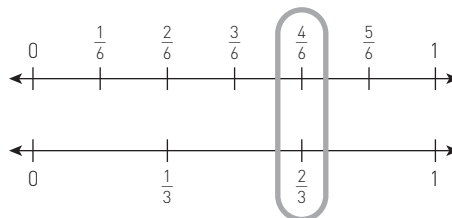
$$1,235 \div 5$$

	247
5	<u>)1,235</u>
	- 1,000
	<u>235</u>
	- 200
	<u>35</u>
	- 35
	<u>0</u>

$$1,235 \div 5 = 247 \text{ because } 247 \times 5 = 1,235$$

Fraction Division (Section 7.2)

Students will divide fractions by fractions using several methods. Developing a visual model of division will help students more intuitively predict a quotient as a number larger or smaller than the dividend. For example, in Lesson 7.2.3, students could use a double number line to visualize $\frac{2}{3}$ as $\frac{4}{6}$, or use a bookshelf model to represent a $\frac{2}{3}$ -inch space on a shelf holding four $\frac{1}{6}$ -inch wide books to illustrate the equation $\frac{2}{3} \div \frac{1}{6} = 4$.



Additionally, in Chapter 4, students used a Giant One to rewrite fractions. This important tool reappears in this chapter to help students divide fractions by fractions as shown.

$$\frac{5}{8} \div \frac{3}{4} = \frac{5}{8} \cdot \frac{4}{3} = \frac{20}{24} = \frac{5}{6}$$

Try This at Home!

Do you like to cook or bake at home? Invite your student to help, and notice together how many fractions are used in measurements of ingredients in a recipe. Ask your student how you could increase or decrease the number of servings a recipe uses, and talk about the connections this makes to what they are learning in school.

