

# Lesson 1.4

Thursday, August 8, 2019 8:03 AM



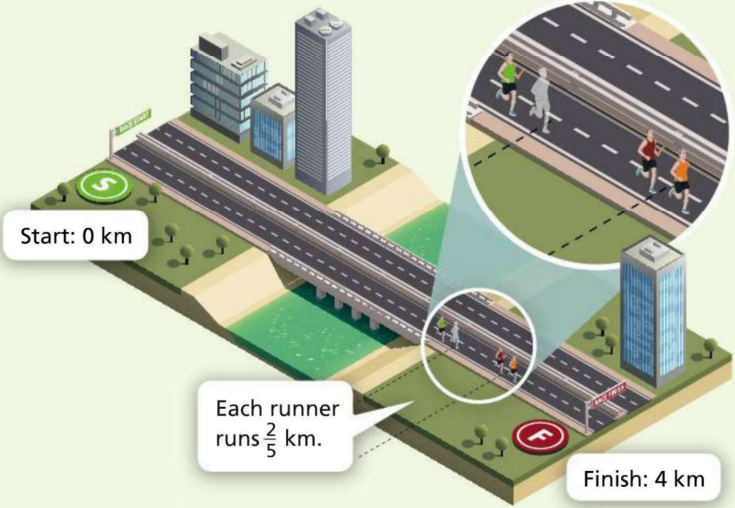
Lesson 1.4

## Lesson 1-4: Understand Division and Fractions

I can...use models and equations to represent fraction division.

**Explore It!**

Students are competing in a 4-kilometer relay race. There are 10 runners.

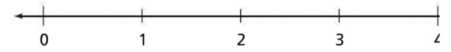


Start: 0 km

Each runner runs  $\frac{2}{5}$  km.

Finish: 4 km

a.) Use the number line to represent the data for the race.



b.) Use multiplication or division to describe your work on the number line.

c.) Describe what a number line would look like if there were 10 runners each running  $\frac{1}{2}$  kilometers in a 5-kilometer race.

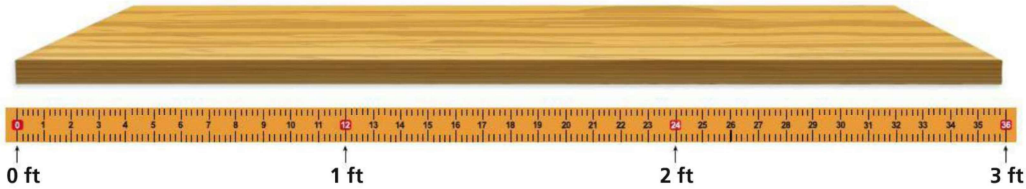
### Vocabulary:

Reciprocals: Two numbers whose product is 1.  
Ex:  $\frac{3}{4} \rightarrow \frac{4}{3}$        $\frac{2}{1} \rightarrow \frac{1}{2}$

## Example 1: Divide Whole Numbers by Fractions

Mr. Roberts has a board that is 3 feet long. He plans to cut the board into pieces that are each  $\frac{3}{4}$  foot long to build a set of shelves. How many shelves can he make?

**Use Structure** How many  $\frac{3}{4}$ s are in 3?



$$3 \div \frac{3}{4}$$

Keep change Flip

$$3 \frac{4}{\cancel{3}} \cdot \frac{\cancel{3}}{4} = 4$$

Try it!

A board is 6 feet long. How many  $\frac{2}{3}$ -foot-long pieces can be cut from the board?

$$6 \div \frac{2}{3}$$

$$6 \frac{3}{\cancel{2}} \cdot \frac{\cancel{2}}{3} = 9$$

**Convince Me!**

a.) Find  $12 \div \frac{3}{8}$

$$12 \div \frac{3}{8} = 12 \frac{8}{\cancel{3}} \cdot \frac{\cancel{3}}{8} = 32$$

b.) Find  $3 \div \frac{1}{4}$

$$3 \div \frac{1}{4} = 3 \frac{4}{1} \cdot \frac{1}{4} = 12$$

## Example 2: Divide Fractions by Whole Numbers

How much cake will each person get if 3 friends decide to share half a cake equally? Find  $\frac{1}{2} \div 3$

$$\frac{1}{2} \div 3$$

$$\frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$$

### Example 3: Use Relationships to Divide Whole Numbers by Fractions

Solve the following.

a.)  $4 \div \frac{2}{3}$

$$\frac{4}{1} \cdot \frac{3}{2} = 6$$

b.)  $8 \div \frac{3}{4}$

$$\frac{8}{1} \cdot \frac{4}{3} = \frac{32}{3} = 10\frac{2}{3}$$

#### KEY CONCEPT



To divide a whole number by a fraction:

Write the whole number as a fraction.

$$14 \div \frac{4}{7} = \frac{14}{1} \div \frac{4}{7}$$

$$\frac{14}{1} \times \frac{7}{4} = \frac{98}{4} \text{ or } 24\frac{1}{2}$$

Multiply the whole number by the reciprocal of the divisor.

To divide a fraction by a whole number:

Write the whole number as a fraction.

$$\frac{4}{7} \div 14 = \frac{4}{7} \div \frac{14}{1}$$

$$\frac{4}{7} \times \frac{1}{14} = \frac{4}{98} \text{ or } \frac{2}{49}$$

Multiply the fraction by the reciprocal of the whole number.

#### Do you understand?

1.) How can you represent division of fractions?

model, equation

2.) Is  $4 \div \frac{3}{2}$  the same as  $4 \div \frac{2}{3}$ ? Explain.

$$\frac{4}{1} \cdot \frac{2}{3} \qquad \frac{4}{1} \cdot \frac{3}{2}$$

=                      NO                      =

Rate your understanding. 1-Do not understand...4-can teach someone else

Learning Target: Dividing whole numbers and fractions				
I can divide whole numbers by fractions.	1	2	3	4
I can divide fractions by whole numbers.	1	2	3	4