

Lesson 2.3

November 6, 2013

# Essential Question

How can you divide by a mixed number?

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## LessonTarget

To be able to:

- use a visual model and a formal rule to divide with mixed numbers.

## Self-Evaluation Rubric

Score	Description
4	I can teach other students how to use a visual model and a formal rule to divide by with mixed numbers.
3	I can use a visual model and a formal rule to divide by with mixed numbers.
2	I recognize a visual model and a formal rule to divide by with mixed numbers.
1	I do not know how to use a visual model and a formal rule to divide by with mixed numbers.

# Activity1

With a partner, complete Activity 1 on page 39 & 40 in your Big Ideas Record and Practice Journal.

## Activity2

With a partner, complete Activity 2 on page 40 & 41 in your Big Ideas Record and Practice Journal.

$$\frac{3}{4} = 3 \cdot \frac{1}{4}$$
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$$

$$\frac{5}{6} = 5 \cdot \frac{1}{6}$$

a. How many three-fourths are in four and one-half?

*out of 1*  
*divisor*

b. How many five-sixths are in three and one-third?

*divisor out of 1*  
*total*

c. How many three-eighths are in three and three-fourths?

$$4\frac{1}{2} \div \frac{3}{4} = 6$$
$$3\frac{1}{3} \div \frac{5}{6} = 4$$

- d. How many one and one-halves are in six?
- e. How many one and one-fifths are in five?
- f. How many one and one-fourths are in four and one-half?
- g. How many two and one-thirds are in five and five-sixths?



## Key Idea

### **Dividing Mixed Numbers**

Write each mixed number as an improper fraction. Then divide as you would with proper fractions.

## 2

## Dividing Mixed Numbers

Find  $3\frac{5}{6} \div 1\frac{2}{3}$ .

$$3\frac{5}{6} \div 1\frac{2}{3} = \frac{23}{6} \div \frac{5}{3}$$

$$= \frac{23}{6} \times \frac{3}{5}$$

$$= \frac{23 \times \cancel{3}^1}{\cancel{6}_2 \times 5}$$

$$= \frac{23}{10}, \text{ or } 2\frac{3}{10}$$

So, the quotient is  $2\frac{3}{10}$ .

**Estimate**  $4 \div 2 = 2$ 

Write each mixed number as an improper fraction.

Multiply by the reciprocal of  $\frac{5}{3}$ , which is  $\frac{3}{5}$ .

Multiply fractions. Divide out common factors.

Simplify.

**Reasonable?**  $2\frac{3}{10} \approx 2$  ✓



## Steps to division of fractions

1. Change all mixed numbers to improper fractions
2. Keep the 1<sup>st</sup> number the same
3. Change div.  $\rightarrow$  mult.
4. Take the reciprocal of 2<sup>nd</sup> number

$$3\frac{1}{3} \div \frac{5}{6}$$

$$\frac{10}{3} \div \frac{5}{6}$$

$$\frac{2}{1} \cdot \frac{6}{5} = \frac{4}{1} = 4$$

$$4\frac{1}{2} \div \frac{3}{4}$$

$$\frac{9}{2} \div \frac{3}{4}$$

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

$$\frac{4}{1} \cdot \frac{1}{1}$$

$$\frac{6}{1} = 6$$

# TryIt!

Try numbers 13 - 24 on page 74  
of your Big Ideas Text Book.

$$\frac{13}{1} \div \frac{105}{6}$$

$$\frac{13}{1} \div \frac{65}{10}$$

$$\frac{13}{1} \div \frac{6}{5} = 1 \frac{1}{5}$$

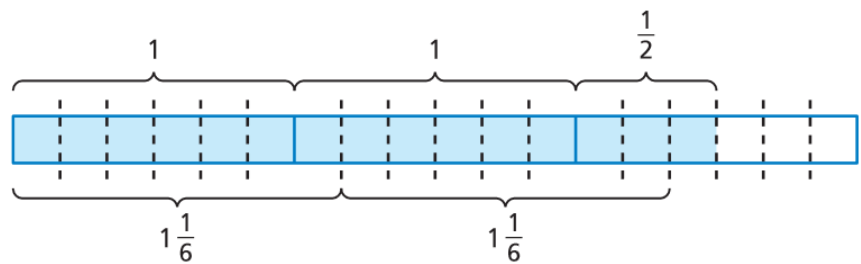




# OnYourOwn

**Reasoning** At a track meet, the longest shot-put throw by a boy is 25 feet 8 inches. The longest shot-put throw by a girl is 19 feet 3 inches. How many times greater is the longest shot-put throw by the boy than by the girl?

**LOGIC** Alexei uses the model shown to state that  $2\frac{1}{2} \div 1\frac{1}{6} = 2\frac{1}{6}$ . Is Alexei correct? Justify your answer using the model.





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# Homework

Big Ideas Record and  
Pracce Journal

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