

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.

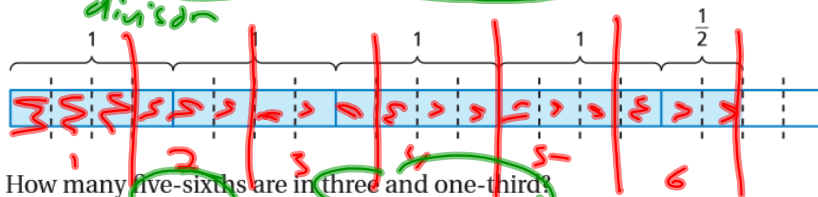
Activity 2

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

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

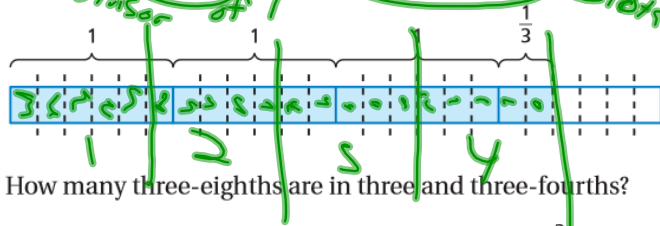
$$\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

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



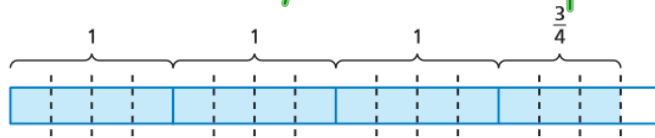
$$4\frac{1}{2} \div \frac{3}{4} = 6$$

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



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

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



- 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?

$$2\frac{1}{2} = \frac{5}{2}$$

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

$$\begin{aligned} 3\frac{5}{6} \div 1\frac{2}{3} &= \frac{23}{6} \div \frac{5}{3} \\ &= \frac{23}{6} \times \frac{3}{5} \\ &= \frac{23 \times \cancel{3}^1}{\cancel{6}_2 \times 5} \\ &= \frac{23}{10}, \text{ or } 2\frac{3}{10} \end{aligned}$$

∴ 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? $2\frac{3}{10} \approx 2$ ✓

Step 1 = Change all mixed numbers to improper fractions

Step 2 = Rewrite/keep 1st number

Step 3 = Change div \rightarrow mult.

Step 4 = take the reciprocal of 2nd number

-

TryIt!

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

$$8 \frac{1}{3} = \frac{25}{3}$$

$$\frac{25}{3} = \frac{25}{3}$$

$$-\frac{25}{3} = \frac{25}{3} = \frac{25}{3} = \frac{25}{3}$$

$$9\frac{1}{6} \div \frac{5}{6}$$

$$\frac{55}{6} \div \frac{5}{6}$$

$$\frac{\cancel{55}}{\cancel{6}} \cdot \frac{\cancel{6}}{\cancel{5}} = \frac{11}{1} = 11$$

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

$$5 \frac{1}{\phi} \div \frac{3}{4}$$

$$3 \frac{1}{\phi} \div \frac{3}{4} = \frac{12}{\phi} = 6$$

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

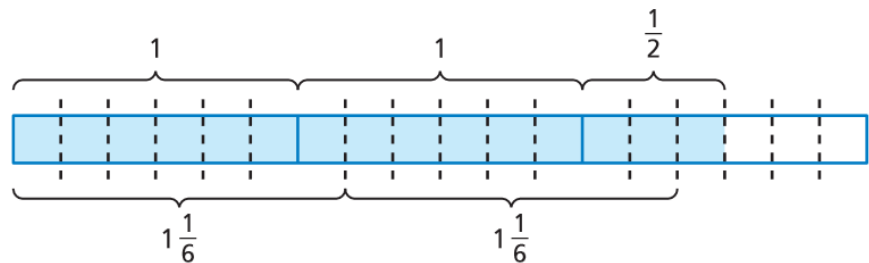
$$\frac{10}{3} \div \frac{5}{6}$$

$$\frac{10}{3} \cdot \frac{6}{5} = \frac{4}{1} = 4$$

On Your Own

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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