

Lesson 2.2

October 31, 2013

WarmUp

Lesson 2.2

October 31, 2013

Essential Question

How can you divide by a fraction?

Lesson 2.2

October 31, 2013

LessonTarget

To be able to:

- use a formal rule to divide by a fraction.

Self-Evaluation Rubric

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

Reciprocals

Two numbers whose product is one.

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

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

$$\frac{4}{5} \cdot \frac{5}{4} = \frac{20}{20} = 1$$

$$\frac{2\sqrt{2}}{6} \cdot \frac{1}{6} = \frac{2\sqrt{2}}{36} = \frac{\sqrt{2}}{18}$$

Invert

To put upside down or in the opposite position, order, or arrangement.

The Meaning of a Word ● Invert

When you **invert** a glass, you turn it over.



1 Writing Reciprocals

	<i>Original Number</i>	<i>Fraction</i>	<i>Reciprocal</i>	<i>Check</i>
a.	$\frac{3}{5}$	$\frac{3}{5}$	$\frac{5}{3}$	$\frac{3}{5} \times \frac{5}{3} = 1$
b.	$\frac{9}{5}$	$\frac{9}{5}$	$\frac{5}{9}$	$\frac{9}{5} \times \frac{5}{9} = 1$
c.	2	$\frac{2}{1}$	$\frac{1}{2}$	$\frac{2}{1} \times \frac{1}{2} = 1$

TryIt!

Try numbers 1 - 4 on page 64 of
your Big Ideas Text Book.

2 Dividing a Fraction by a Fraction

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

$$\frac{1}{6} \div \frac{2}{3} = \frac{1}{\cancel{6}} \times \frac{\cancel{3}}{2}$$

Multiply by the reciprocal of $\frac{2}{3}$, which is $\frac{3}{2}$.

$$= \frac{1 \times \cancel{3}}{\cancel{6} \times 2}$$

Multiply fractions. Divide out the common factor 3.

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

Simplify.

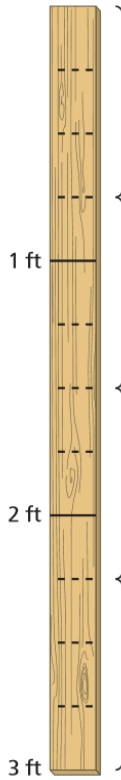
$$4 \div 2 = 2$$

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

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

Division =
mult. of the
reciprocal

EXAMPLE 3 Dividing a Whole Number by a Fraction



A piece of wood is 3 feet long. How many $\frac{3}{4}$ -foot pieces can you cut from the piece of wood?

Method 1: Draw a diagram. Mark each foot on the diagram. Then divide each foot into $\frac{1}{4}$ -foot sections.

Count the number of $\frac{3}{4}$ -foot pieces of wood. There are four.

2 So, you can cut four $\frac{3}{4}$ -foot pieces from the piece of wood.

Method 2: Divide 3 by $\frac{3}{4}$ to find the number of $\frac{3}{4}$ -foot pieces.

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

Multiply by the reciprocal of $\frac{3}{4}$, which is $\frac{4}{3}$.

$= \frac{1 \cancel{3} \times 4}{\cancel{3} 1}$

Multiply. Divide out the common factor 3.

$= 4$

Simplify.

4 So, you can cut four $\frac{3}{4}$ -foot pieces from the piece of wood.

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

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

TryIt!

Try numbers 7 & 9 on page 65
of your Big Ideas Text Book.

$$\frac{3}{8} \div \frac{1}{4}$$

$$\frac{3}{8} \cdot \frac{4}{1} = \frac{12}{8} = \frac{3}{2}$$

$$\frac{2}{5} \div \frac{3}{10}$$

$$\frac{2}{5} \cdot \frac{10}{3} = \frac{4}{3} = 1\frac{1}{3}$$

$$7 \div \frac{1}{2}$$

$$\frac{7}{1} \cdot \frac{2}{1} = \frac{14}{1} = 14$$



NO
HW

Lesson 2.2

October 31, 2013

Essential Question

How can you divide by a fraction?

Lesson 2.2

October 31, 2013

LessonTarget

To be able to:

- use a formal rule to divide by a fraction.

Self-Evaluation Rubric

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