

Name: Key
Date: _____

Mr. Johnson
Math 8

Lesson 3.6 – Dividing Fractions
&
Lesson 3.7 – Dividing Mixed Numbers

Summary: *WHAT HAVE WE DONE SO FAR IN CHAPTER 3????*

- we have learned how to divide a whole number by a fraction
- we have learned how to divide a fraction by a whole number
- today we'll learn how to divide a fraction by a fraction

Think it out:

What does it mean to divide a fraction by a fraction? Can you think of a real life application?

(student response)

Notes:

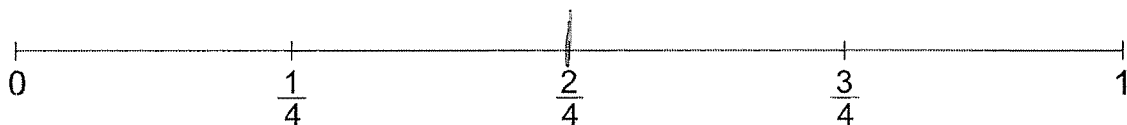
For instance take the expression $\frac{1}{2} \div \frac{1}{4}$, this means many how many 1 quarters are there in one half.

Using a number line we get the following:

Firstly, write the fractions with a common denominator:

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

Think of the question as: How many quarters are there in 2 quarters?



$$= 2$$

The most common way to deal with multiplying fractions is to follow this rule:

'Kiss and flip'

Change the division symbol to a multiplication symbol (x - kiss!) and then take the reciprocal of the divisor (flip!).

Examples: (Using kiss & flip method!)

$$\begin{aligned} 1. \quad & \frac{3}{5} \div \frac{1}{3} \\ & = \frac{3}{5} \times \frac{3}{1} \\ & = \frac{9}{5} = 1 \frac{4}{5} \end{aligned}$$

$$\begin{aligned} 2. \quad & \frac{4}{6} \div \frac{1}{3} \\ & = \frac{4}{6} \times \frac{3}{1} \\ & = \frac{12}{6} = 2 \end{aligned}$$

$$\begin{aligned} 3. \quad & \frac{1}{8} \div \frac{2}{5} \\ & = \frac{1}{8} \times \frac{5}{2} \\ & = \frac{5}{16} \end{aligned}$$

Dividing Mixed Numbers is no different than dividing fractions with one exception. First, we will convert all mixed numbers to improper fractions

Examples:

$$\begin{aligned} 1. \quad & 2\frac{3}{4} \div 3\frac{1}{2} \\ & = \frac{11}{4} \div \frac{7}{2} \quad (\text{now kiss/flip}) \\ & = \frac{11}{4} \times \frac{2}{7} \\ & = \frac{22}{28} \\ & = \frac{11}{14} \end{aligned}$$

$$\begin{aligned} 2. \quad & 1\frac{1}{6} \div 4\frac{5}{8} \\ & = \frac{7}{6} \div \frac{37}{8} \\ & = \frac{7}{6} \times \frac{8}{37} \\ & = \frac{56}{222} \\ & = \frac{28}{111} \end{aligned}$$

Assignment (3.6):

Pg. 138-140
#’s 1-13, 17, 19

Assignment (3.7):

Pg. 144-146
#’s 1-14, 17

