NAME_____

Module 6 Computational Fluency of Fractions
Lesson 6 Dividing Fractions

Lesson Notes 6.6

Lesson Objectives

- Model division of fractions using diagrams and/or illustrations of manipulatives.
- Develop and use algorithms for dividing fractions.

Subtopic 1 Dividing Using Models and the Invert-and-Multiply Algorithm

Two numbers are multiplicative inverses or **reciprocals** of each other if their product is 1.

Multiplicative Inverse or Reciprocal

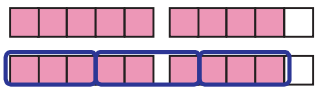
- For a **nonzero** number n, the reciprocal is $\frac{1}{n}$.
- Zero does not have a **reciprocal**.

When dividing a fraction or mixed number by a nonzero **whole number**, multiply the **dividend** by the reciprocal of the nonzero whole number.

1 Use a model to divide $\frac{5}{8}$ into five equal groups.

$$\frac{5}{8} \div 5 = \frac{1}{8}$$

2 Pedro has $1\frac{4}{5}$ hours to study for three tests. If Pedro divides his time equally, how long can he study for each test?



$$1\frac{4}{5} \div 3 = 1\frac{4}{5} \times \frac{1}{3} = \frac{\overset{3}{\cancel{9}}}{5} \times \frac{1}{\underset{1}{\cancel{3}}} = \frac{3}{5}$$

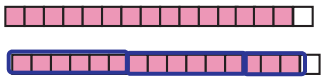
Pedro can study $\frac{3}{5}$ of an hour for each test.

Subtopic 2 Dividing Using Models and the Common Denominator Algorithm

Dividing Fractions Using the Common Denominator

- Write both **fractions** in terms of a common denominator.
- Divide the **numerators**.

3 Lewis has $\frac{15}{16}$ cup of juice mix. It takes $\frac{3}{8}$ cup of mix to make one pitcher of juice. How many pitchers of juice can Lewis make? Use a model.



$$\frac{15}{16} \div \frac{6}{16} = 2\frac{1}{2}$$

Lewis can make $2\frac{1}{2}$ pitchers of juice.

To divide a fraction, whole number, or mixed number by a **fraction**, multiply the dividend by the **reciprocal** of the divisor.