

Name: _____

Period: _____

Date: _____

Math Unit 2: Fractions and Decimals**Lesson 2.3- Dividing Mixed Numbers****SWBAT:****Paraphrase:****Essential Question:** How can you model division by a mixed number?

Example 1

Find $2\frac{1}{4} \div \frac{3}{8}$.

$$\begin{aligned}
 2\frac{1}{4} \div \frac{3}{8} &= \frac{9}{4} \div \frac{3}{8} \\
 &= \frac{9}{4} \times \frac{8}{3} \\
 &= \frac{\overset{3}{\cancel{9}} \times \overset{2}{\cancel{8}}}{\underset{1}{\cancel{4}} \times \underset{1}{\cancel{3}}} \\
 &= 6
 \end{aligned}$$

Write $2\frac{1}{4}$ as the improper fraction $\frac{9}{4}$.Multiply by the reciprocal of $\frac{3}{8}$, which is $\frac{8}{3}$.

Multiply fractions. Divide out common factors.

Simplify.

Example 2

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

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

∴ 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? $2\frac{3}{10} \approx 2$ ✓

Your Turn

Divide. Write the answer in simplest form.

1. $1\frac{3}{7} \div \frac{2}{3}$

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

3. $8\frac{1}{4} \div 1\frac{1}{2}$

4. $6\frac{4}{5} \div 2\frac{1}{8}$

Example 3

Evaluate $5\frac{1}{4} \div 1\frac{1}{8} - \frac{2}{3}$.

$$5\frac{1}{4} \div 1\frac{1}{8} - \frac{2}{3} = \frac{21}{4} \div \frac{9}{8} - \frac{2}{3}$$

$$= \frac{21}{4} \times \frac{8}{9} - \frac{2}{3}$$

$$= \frac{\overset{7}{\cancel{21}} \times \overset{2}{\cancel{8}}}{\underset{1}{\cancel{4}} \times \underset{3}{\cancel{9}}} - \frac{2}{3}$$

$$= \frac{14}{3} - \frac{2}{3}$$

$$= \frac{12}{3}, \text{ or } 4$$

Write each mixed number as an improper fraction.

Multiply by the reciprocal of $\frac{9}{8}$, which is $\frac{8}{9}$.

Multiply $\frac{21}{4}$ and $\frac{8}{9}$. Divide out common factors.

Simplify.

Subtract.

Your Turn

Evaluate the expression. Write the answer in simplest form.

5. $1\frac{1}{2} \div \frac{1}{6} - \frac{7}{8}$

6. $3\frac{1}{3} \div \frac{5}{6} + \frac{8}{9}$

Notes/
Questions