Big Ideas Math: Green

Parent Newsletter

Chapter 2: Fractions and Decimals

Standards

Common Core:

6.NS.1: Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem.

6.NS.3: Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.

Key Term

Two numbers whose product is 1 are ***reciprocals***.

Games

- Fun with Fractions
- Pick Your Polygon
- Name the Number
- Let's Go Shopping
- Amazing Decimals

These are available online in the *Game Closet* at www.bigideasmath.com.

Essential Questions

What does it mean to multiply fractions?

How can you divide by a fraction?

How can you model division by a mixed number?

How can you add and subtract decimals?

How can you multiply decimals?

How can you use base ten blocks to model decimal division?

Students will...

Use models to multiply fractions.

Multiply fractions by fractions.

Write reciprocals of numbers.

Use models to divide fractions.

Divide fractions by fractions.

Use models to divide mixed numbers.

Divide mixed numbers.

Use models to add and subtract decimals.

Add and subtract decimals.

Use models to multiply decimals.

Multiply decimals.

Use models to divide decimals.

Divide decimals.

Solve real-life problems.

Key Ideas

Multiplying Fractions

- Multiply the numerators and multiply the denominators.
- $\frac{a}{b} \cdot \frac{c}{d} = \frac{a \cdot c}{b \cdot d}$, where $b, d \neq 0$.

Multiplying Mixed Numbers

- Write each mixed number as an improper fraction.
- Then multiply as you would with fractions.

Dividing Fractions

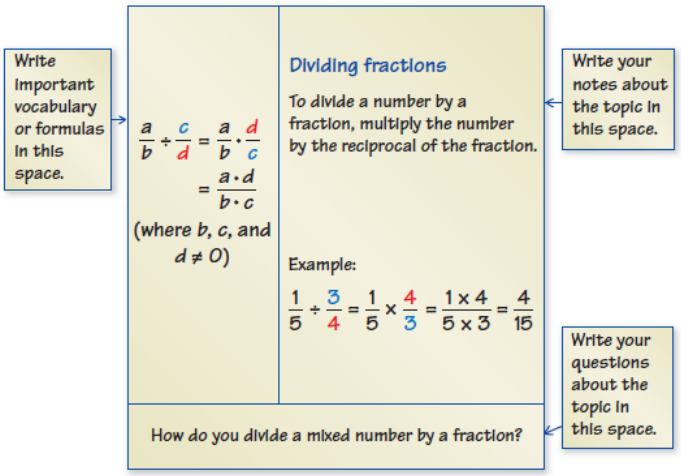
- To divide a number by a fraction, multiply the number by the reciprocal of the fraction.
- $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{a \cdot d}{b \cdot c}$, where b, c, and $d \neq 0$

Dividing Mixed Numbers

- Write each mixed number as an improper fraction.
- Then divide as you would with proper fractions.

Reference Tools

A **Notetaking Organizer** can be used to write notes, vocabulary, and questions about a topic. In the space on the left, write important vocabulary or formulas. In the space on the right, write notes about the topic. In the space at the bottom, write questions about the topic.



Quick Review

- Cross multiply when an equal sign is between fractions.
- Multiply the numerators and denominators when there is a multiplication symbol between fractions.
- To express a whole number as an improper fraction, put it over a denominator of 1.
- To write the reciprocal of a number, write the number as a fraction. Then invert the fraction. So, the reciprocal of a fraction $\frac{a}{b}$ is $\frac{b}{a}$, where a and $b \neq 0$.

Key Ideas

Adding and Subtracting Decimals

- To add or subtract decimals, write the numbers vertically and line up the decimal points.
- Then bring down the decimal point and add or subtract as you would with whole numbers.

Multiplying Decimals by Whole Numbers

- Multiply as you would with whole numbers.
- Then count the number of decimal places in the decimal factor.
- The product has the same number of decimal places.

Multiplying Decimals by Decimals

- Multiply as you would with whole numbers.
- Then add the number of decimal places in the factors.
- The sum is the number of decimal places in the product.

Dividing Decimals by Whole Numbers

- Place the decimal point in the quotient above the decimal point in the dividend.
- Then divide as you would with whole numbers.
- Continue until there is no remainder.

Dividing Decimals by Decimals

- Multiply the divisor *and* the dividend by a power of 10 to make the divisor a whole number.
- Then place the decimal point in the quotient and divide as you would with whole numbers.
- Continue until there is no remainder.

What's the Point?

The ability to work with fractions and decimals is very useful in real life for events like baking multiple batches of cookies for a bake sale. Bake some of your student's favorite cookies and try doubling or tripling the batch. Have them figure out how much of each ingredient is needed to make the cookies. For example, if a single batch calls for ¾ cups of sugar, then a triple batch would call for 3 * ¾ cups of sugar.

The STEM Videos available online show ways to use mathematics in real-life situations. The Chapter 2: Space is Big STEM Video is available online at www.bigideasmath.com.