Try these

Ms. Arnold's recipe for 6 dozen cookies calls for 3/4 cup of butter and 1 1/2 cups of sugar. How much butter does she need to make only 3 dozen cookies?

Mr. Vanderhill's gas tank holds 12 gallons when full. According to his gas gauge, he has only 1/8 of a full tank left. How much gas will he **need to fill his tank.**

Sep 27-1:29 PM

Part 1

DIVIDING FRACTIONS

I can find a quotient of whole numbers and unit fractions.

Sep 27-1:30 PM

WARM-UP: 5 minutes
1.1: Number Talk

Teacher info: Reveal one problem at a time. Give students 30 seconds of quiet think time for each problem and ask them to give a signal when they have an answer and a strategy. Keep all previous problems displayed throughout the task.

Find the value of each expression mentally.

5,000÷5

5,000÷2,500

5,000÷10,000

5,000÷500,000

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Here is an expression: 20÷4.

What are some ways to think about this expression? Describe at least two meanings you think it could have.

Sep 27-1:31 PM

A baker has 12 pounds of almonds. She puts them in bags, so that each bag has the same weight. In terms of pounds and bags of almonds, what could 12÷6 mean?

$\frac{12}{6}$

12

6

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Let's model this one $\frac{12}{4}$

12

Sep 27-1:32 PM

Let's start with...

Dividing a Whole Number by a Unit Fraction modeling

Kahn Academy

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

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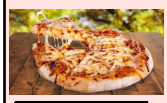
÷ Dividing a Whole Number by a Fraction modeling

Let's look at this one together...

You have 4 blocks of cheese. Each pizza requires ½ of a cup of cheese. How many pizzas can you make?



Sep 27-1:37 PM

÷ Dividing a Whole Number by a Fraction modeling

on your worksheet

1) You have 4 blocks of cheese. Each pizza requires ⅓ of a cup of cheese. How many pizzas can you make?

Turn and talk to discuss (no writing) how you would set up your model

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Dividing a Whole Number by a Fraction modeling

Continue # 2-4 with your table partner

Sep 27-1:48 PM

Dividing a Whole Number by a Fraction modeling

Now you have 5 blocks of cheese...

(bottom half of worksheet)

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÷ Dividing a Fraction by a Whole Number modeling

(back of worksheet)

video lesson

Let's look at this one together...

Two friends are sharing a ½ of a pound (lb) of popcorn. How many pounds of popcorn will each friend receive?

Turn and talk to discuss (no writing) how you would set up your model

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÷ Dividing a Fraction by a Whole Number modeling

Continue # 2-4 with your table partner

Let's check in...

Continue with #5-8

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More practice....

Sep 28-11:03 AM

Day 2

Dividing a Fraction by a Fraction modeling

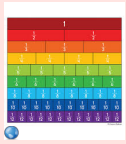
Sep 28-11:10 AM

÷ Dividing a Fraction by a Fraction modeling

video lesson

Now let's use fraction bars to model

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



Sep 27-2:30 PM

Dividing a Fraction by a Fraction modeling

Continue # 1-4 with your table partner

Sep 27-2:30 PM

Dividing a Fraction by a Fraction modeling

Sep 28-10:52 AM

DIVIDING FRACTIONS

I can use **common denominators** to divide whole numbers by fractions and fractions by whole numbers.

I can **common denominators** to divide fractions.

Sep 28-10:52 AM

In division, the dividend and divisor must be units of the same kind. They must have the same name. We can only divide dollars by dollars, hours by hours, yards by yards. We can't say 15 yards divided by 9 feet because feet and yards are not the same unit - they don't have the same name! We must change one of them.

15 yards ÷ 3 yards = 5 yards

With fractions, the ***denominator names the units.***

Therefore,

Sep 28-11:09 AM

$$\frac{6}{7} \div \frac{2}{7} = \frac{6\div2}{7\div7} = \frac{3}{1} = 3$$

"6 sevenths ÷ 2 sevenths = 3"

-- because 3 *times* 2 sevenths = 6 sevenths.

3 is how many times 2 sevenths are contained in 6 sevenths -- which is the answer to the question that division asks.

Here is the rule:

To divide fractions, the denominators must be the same.

The quotient will be the quotient of the numerators.

Sep 28-11:19 AM

Example 1. $\frac{14}{20} \div \frac{15}{20}$

proof $\frac{14}{20} \div \frac{15}{20} = \frac{14}{15}$.

Solution. We must show that the quotient $\frac{14}{15}$ times the divisor, $\frac{15}{20}$, will equal the dividend, $\frac{14}{20}$.

And on canceling the 15's --

$$\frac{14}{15} \times \frac{15}{20} = \frac{14}{20}$$

-- it does.

Therefore when the denominators are the same, the quotient will be the quotient of the numerators.

Therefore when the denominators are the same, the quotient will be the quotient of the numerators.

Example 3. $\frac{5}{8} \div \frac{7}{8} = \frac{5}{7}$.

Example 4. $\frac{7}{8} \div \frac{5}{8} = \frac{7}{5} = 1\frac{2}{5}$.

Sep 28-11:22 AM

Different denominators

When the denominators are not the same --

$$\frac{5}{8} \div \frac{2}{3}$$

-- we can make a common denominator in the same way that we add fractions:

$$\frac{5}{8} \div \frac{2}{3} = \frac{15}{24} \div \frac{16}{24} = \frac{15}{16}.$$

The common denominator here is $8 \times 3 = 24$.

Sep 28-11:23 AM

Example 5. $\frac{2}{5} \div \frac{3}{4}$

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

As in multiplication, we must change mixed numbers to improper fractions. The common denominator is this example is 4.

Sep 28-11:25 AM

Example 7. $\frac{3}{5} \div 2 = \frac{3}{5} \div \frac{10}{5} = \frac{3}{10}$.

To change a whole number into a fraction, multiply the whole number by the denominator.

$\frac{5}{6} \div 3 = \frac{5}{6} \div \frac{18}{6} = \frac{5}{18}$

$\frac{3}{5} \div 1$

Sep 28-11:27 AM

$1\frac{1}{3} \div 1\frac{3}{5}$

Sep 28-11:31 AM

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