Math
Tuesday
10/11/16

Multiplying Fractions

- The Steps:
- Multiply the two numerators
- Multiply the two denominators.
- That's it!

Practice

- 3/5 X 4/5
- 5/6 X 7/8
- 1/2 X 1/3

Practice

- 4 x 1/2
- 7 x 3/4
- What about multiplying two mixed numbers? What do you think you will have to do to solve this?
  - 3 1/2 x 2 1/2 **Lets try this example together first.**
  - https://www.youtube.com/watch?v=RPhaidW0dmY  

In a moment, you'll have an opportunity to work on some problems to help you review.

These are due at the end of the class period.

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Today

- Today we are going to learn about dividing a fraction by a fraction with the goal of being able to answer word problems which divide a fraction by a fraction.

- You will need your Math notebook!

Dividing Fractions

- https://www.khanacademy.org/math/arithmetic/fractions/div-fractions-fractions/v/conceptual-understanding-of-dividing-fractions-by-fractions
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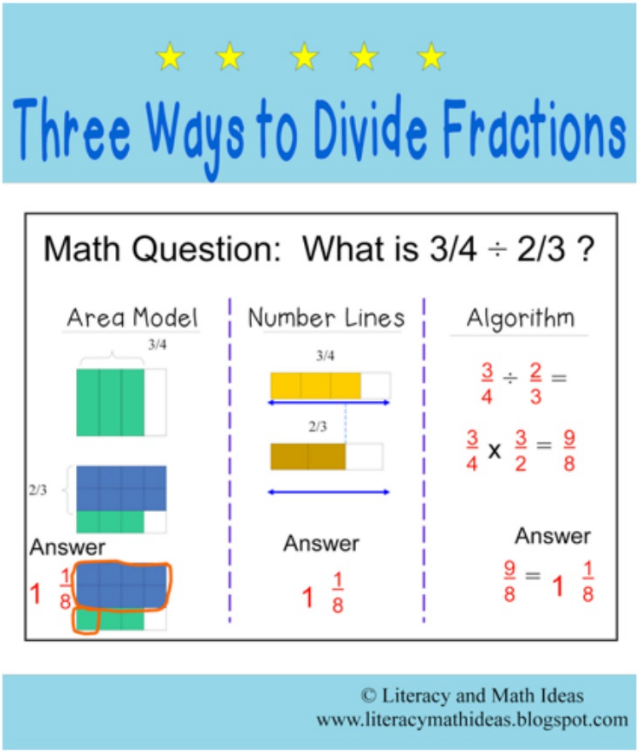

Dividing Fractions

The rules are simple....just...

- Keep it, Switch it, Flip it
- 3/8 Divided by 1/3 **lets use this problem as an example! Make sure to write this in your notebook!**

In a moment, you'll have a chance to practice on your own, but lets do the first couple together.

Remember the rules! Keep it, Switch it, Flip it!

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Yesterday, we worked on one of 3 ways to divide fractions. Today we are going to work on a second way.

In a moment, you will receive your warm up. It looks like this.

Classwork

Opening Exercise

A

Write a division sentence to solve each problem.

1. 8 gallons of batter are poured equally into 4 bowls. How many gallons of batter are in each bowl?
2. 1 gallon of batter is poured equally into 4 bowls. How many gallons of batter are in each bowl?

Write a division sentence *and* draw a model to solve.

3. 3 gallons of batter are poured equally into 4 bowls. How many gallons of batter are in each bowl?

B

Write a multiplication sentence to solve each problem.

1. One fourth of an 8-gallon pail is poured out. How many gallons are poured out?
2. One fourth of a 1-gallon pail is poured out. How many gallons are poured out?

Write a multiplication sentence *and* draw a model to solve.

3. One fourth of a 3-gallon pail is poured out. How many gallons are poured out?

What do you notice when you compare the division and multiplication sentences?

Dividing by 4 and multiplying by 1/4 are the same! They are equivalent statements!

Lets use some models to demonstrate this!

3 gallons of batter are poured equally into 4 bowls. How many gallons of batter are in each bowl?

How would would your model look if Problem 3 started with less than 1 gallon of batter being poured into 2 bowls?

Example 1

$\frac{3}{4}$ gallon of batter is poured equally into 2 bowls. How many gallons of batter are in each bowl?

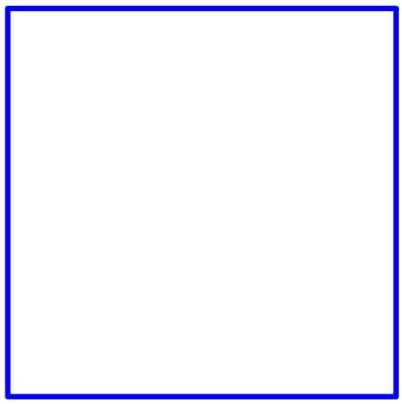
What division expression can we write to match this story?

Example 1

$\frac{3}{4}$ gallon of batter is poured equally into 2 bowls. How many gallons of batter are in each bowl?

We can also think of this problem as asking "3 fourths is 2 groups of what?" What is the whole? How much batter is being shared?

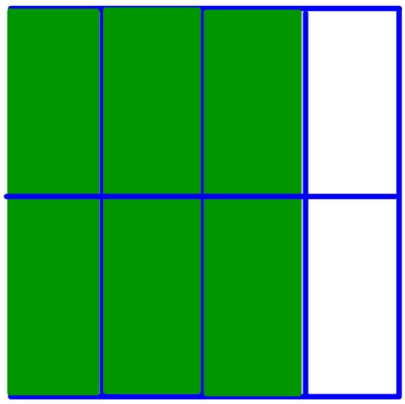
Lets take a look at how to solve this using an area model.



Example 1

$\frac{3}{4}$ gallon of batter is poured equally into 2 bowls. How many gallons of batter are in each bowl?

We said that we could also think of the problem as "3 fourths is 2 groups of what?" Is it true that 3 fourths is 2 groups of 3 eighths? Try to show this using math, either addition or multiplication to support your response.



Example 2

$\frac{3}{4}$ pan of lasagna is shared equally by 6 friends. What fraction of the pan will each friend get?

This is a partitive division problem since we are told there are 6 parts , or that the lasagna is being shared equally amond 6 friends. Write a division expression to represent the story problem.

Example 2

$\frac{3}{4}$ pan of lasagna is shared equally by 6 friends. What fraction of the pan will each friend get?

In this case, dividing by 6 is the same as multiplying by what?

Look at the model. Explain to your neighbor how it shows division by 6 and also shows multiplication by ....

Example 3

A rope of length $\frac{2}{5}$ m is cut into 4 equal cords. What is the length of each cord?

This is the same type of problem as the last couple, its telling us that there are 4 parts, or that the rope is cut equally into 4 cords.

Write a division expression to represent this story problem.

Example 3

A rope of length $\frac{2}{5}$ m is cut into 4 equal cords. What is the length of each cord?

The length of rope is cut into 4 equal cords. How can we show that in our model?

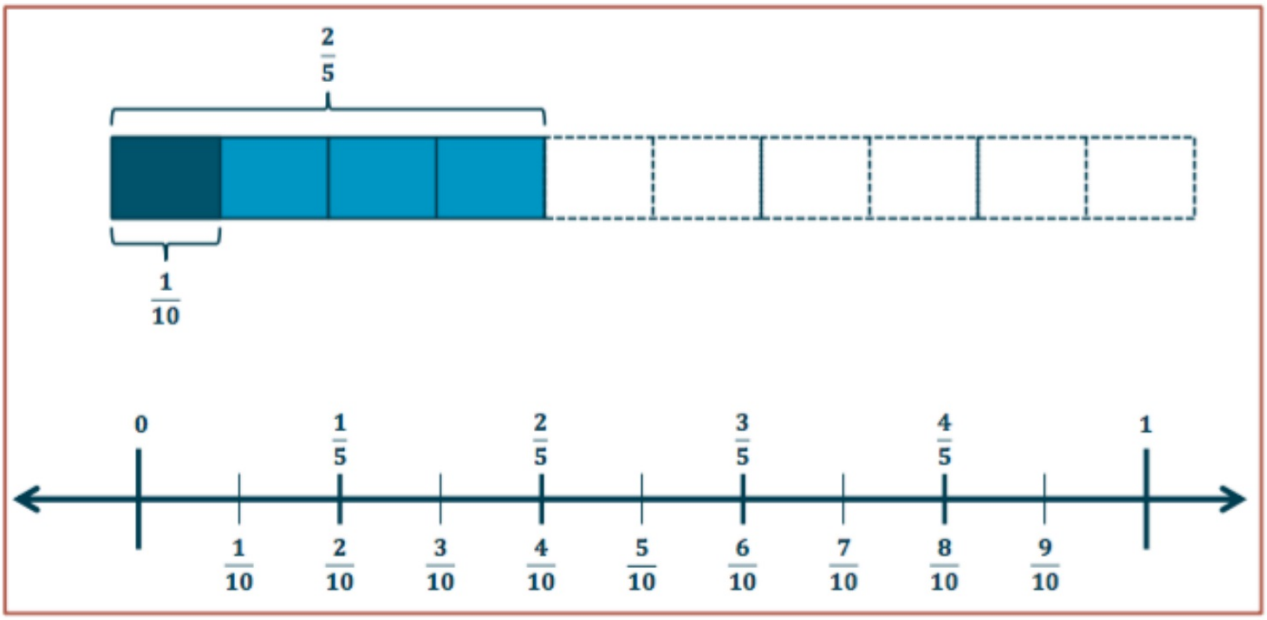
$\div 4 = \frac{1}{4}$ *of* $\frac{2}{5} = \frac{2}{20} = \frac{1}{10}$

ch cord is $\frac{1}{10}$ m.

$\div 4 = 4$ *tenths* $\div 4 = 1$ *tenth* $= \frac{1}{10}$

te a look at the division sentence I've written using unit language. How do our models suppor
ught? How does the use of unit language support your understanding of this division probler

We can also construct a number line to support our solution. When the number line is drawn beneath the tape diagram, we can see the similarities between the two models.



What are the similarities between dividing by 4 and multiplying by 1/4?

Math
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Today, you'll be practicing your fraction skills with some word problems, similar to what you have seen on the homework.

Lets do a couple together