Multiplying and dividing fractions:

Class notes:
What is fraction division?
The grouping or splitting of a bundle of object **EVENLY** into specific group sizes.

Example 1: Splitting $\frac{8}{10}$ bag of candy into 5 (much smaller) goodie bags. **How much** candy will be in each bag?

Example 2: Distributing $\frac{15}{2}$ gallons of water into bottles that holds $\frac{3}{8}$ gallons of water. **How many** bottles will be filled?

Acronyms that you may be familiar with: Keep flip change.
What is wrong with this given the context in our examples?
What do you keep?
What do you flip?
What do you change?

Pros of "keep flip change" - a easy way to remember the mechanical procedure of fraction division given no relatable context.

Cons of "keep flip change" - almost always un-relatable when given a specific context of real life example.
"Keep", "flip" or "change" the wrong part of the fraction when working to solve for the answer.

The mechanical aspect of fraction division:

$\frac{1}{2} \div \frac{3}{4}$ Given this problem to start.

$= \frac{1}{2} \times \frac{4}{3}$

What changed:
1) instead of division, it is now multiplication, and
2) the second fraction is the reciprocal of what it was.

$= \frac{1 \times 4}{2 \times 3}$

$= \frac{4}{6}$

Let's use our examples and see how "keep flip change" fails.

Example 1: Splitting $\frac{8}{10}$ bag of candy into 5 (much smaller) goodie bags. **How much** candy will be in each bag?

"What is being divided" $\div$ "the group size"

"$\frac{8}{10}$ bag of candy" $\div$ "5 even goodie bags"

***What do we "keep, flip, change?" Does that make sense?
Can we "keep" the $\frac{8}{10}$ bag of candy?
Can we "flip" the second fraction into its reciprocal?
Can we "change" dividing candy into multiplying candy?***

Splitting $\frac{8}{10}$ bags of candy into 5 groups means each goodie bad will contain $\frac{1}{5}$ of the $\frac{8}{10}$ bag of candy.

"$\frac{8}{10}$ bag of candy" $\times$ "$\frac{1}{5}$ per each goodie bag"

"$\frac{8}{50}$ bag of candy per each goodie bag"

Each goodie bad will contain $\frac{8}{50}$ bag of candy from the original bag.

Example 2: Distributing $\frac{15}{2}$ gallons of water into bottles that holds $\frac{3}{8}$ gallons of water. **How many** bottles will be filled?

"What is being divided" $\div$ "the group size"

"$\frac{15}{2}$ gallons of water" $\div$ "bottles that holds $\frac{3}{8}$ gallons", how many bottles will be filled?

$\frac{15}{2} \div \frac{3}{8}$

$= \frac{15}{2} \times \frac{8}{3}$

$= \frac{120}{6}$

$= 20$

The $\frac{15}{2}$ gallons of water can fill up 20 bottles that can each hold $\frac{3}{8}$ gallons of water.

Classwork:
Page 67 # 1, 2, 5

Homework:
Page 68 # 7, 8, 10-15, 22-25, 29,30
Review the notes from today on the website.

Warm-up

1) Turn in your homework into the folder.

2) Take out your textbook, and leave it on your desk.

3) On a separate sheet of paper, label "Classwork 21: Dividing fractions." Copy the notes on the board AFTER you are done with the problems below.

4) Write down your homework assignment for tonight.

5) Solve each of the equation. SHOW YOUR WORK!

a) $(5)(5) \div (-5)(-3) =$ _____

b) (-11) - 4 = _____

c) 4 - (-3) = _____

d) $\frac{5}{10} + \frac{-7}{10} =$ _____ .

Exit Ticket

Show your work for full credit.

1) $\frac{4}{-3} \div \frac{7}{9} =$ _____

2) $\frac{5}{2}$ chocolate bar is split between 15 middle schoolers, how much of the chocolate bar will each middle schooler get?