Week #2: The Number System

Multiplying and Dividing Fractions:

Multiplying Fractions: Multiplying fractions are very easy because you just multiple across. Meaning multiple the numerators (top numbers) together then multiple your denominators (bottom numbers) together and then you have your answer. Remember in word problems, using fractions, they are more than likely going to use the word "of." This just means to multiply.

For example: 1/4 x 6/8 = 6/32 because 1 x 6 = 6 and 4 x 8 = 32 (then you can simplify it so the answer then becomes 3/16)

This is the same if you are multiplying many fractions even if there is an improper fraction.

For example: ½ x 4/3 x 3/15 = 12/30 which is simplified to 4/11

Explanation: 1 x 4 = 4 so then 4 x 3 = 12 (the numerator) and 2 x 3 = 6 so then 6 x 5 = 30 (the denominator)

You need to add a step when you are multiplying mixed numbers; you will need to convert them to improper fractions first. To do this you will need to multiple the denominator with the whole number and then add that number to the numerator.

For example:

1 5/6 gets converted to 11/6 because 6 x 1 = 6 then 6 + 5 = 11 (you keep the same denominator

So in the problem 1 5/6 x 4 ½ we already know, now, that 1 5/6 becomes 11/6 so we need to convert 4 ½ and we do so the same way: 2 x 4 = 8 then 8 + 1 = 9 making the second improper fraction 9/2. Now we can solve the problem: 11/6 x 9/2 Remember we are just multiplying across: 11 x 9 = 99 then 6 x 2 = 12 so the answer is 99/12 but wait…not yet. We have to change it back to a mixed number (simplify it) so our answer, in the simplest form is: 8 ¼

Dividing Fractions: Dividing fractions can be done in three simple steps.

- Step 1: Turn the second fraction (the one you want to divide by) upside down – this is now a reciprocal.
- Step 2: Multiply the first fraction by that reciprocal
- Step 3: Simplify the fraction, if needed.

For example:

½ / 1/6

Step 1: 1/6 becomes 6/1

Step 2: ½ x 6/1 = 6/2

Step 3: 6/2 = 3

So the answer:

½ / 1/6 = 3

*Word Problems: in word problems using fractions they are going to ask "how many" like How many 1/6th slices of pizza fit into ½ slice?

Dividing Fractions by whole numbers isn't so bad either because all you need to o is make the whole number a fraction by putting it over a 1. Then you follow the same instructions as above.

For example:

3 / 1/4

First: 3 = 3/1 now the new problem reads 3/1 / 1/4

Step 1: 1/4 becomes 4/1

Step 2: 3/1 x 4/1 = 12/1

Step 3: Simplify the Answer = 12/1 = 12