Algebra 1
Lesson 1-5

Manipulating Decimals

Now that we know our basics in regard to decimals, it is important to know how to manipulate decimals so that we can make them behave how we want them to.

Addition and Subtraction of Decimals

Ex. 8.01 + 6.5309

Step 1: Line Up the Decimals
Lining up the Decimals is important so that you are able to better organize your work. It also cuts down on potential mistakes.

Ex.
$$\begin{array}{r} 8.01 \\ +\ \underline{6.5309} \end{array}$$

Step 2: Add in any Necessary Zeroes
These zeroes are important because they will be used as placeholders in your equation. This will once again aide in the setting up and execution of the problem.

Ex.
$$\begin{array}{r} 8.0100 \\ +\ \underline{6.5309} \end{array}$$

Step 3: Do the Math
Please keep in mind that these steps are the same for addition and subtraction.

Multiplication of Decimals

Ex. 0.65 x 0.3

Step 1: DO NOT LINE UP THE DECIMALS
Lining up the decimals, while the problem will still work itself out eventually, will only lead to additional steps that take too long and are not necessary. So do everyone a favor and don't try and line the decimals up.

Step 2: Count the Numbers after the Decimal
This will help you at the end. In the example, there are two numbers after the decimal in 0.65, and one number after the decimal in 0.3. Thus, there are a total of three numbers after the decimal total.

Ex.
$$\begin{array}{r} 0.65 \\ \times\ \underline{0.3} \end{array}$$

Step 3: Multiply
Multiply out the problem as if the decimals weren't there.

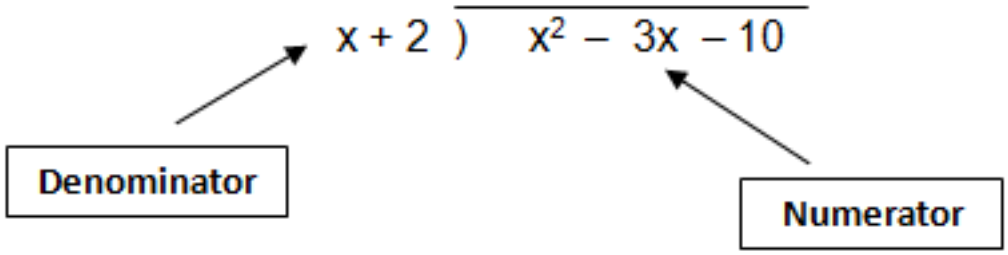
Ex. $\begin{array}{r} 65 \\ \underline{\times\ 3} \\ 195 \end{array}$

Step 4: Adjust the Decimal
In your final answer, make sure that the number that you got in Step 2 is the total number of digits after the decimal in your answer.

Ex. In Step 2, I got 3 numbers after the decimal.
0.195 is my answer.

Dividing Decimals
Step 1: Set Up the Problem Correctly. You will have to use Long Division
Please know which is your numerator and which is your denominator. This is some pretty basic stuff, but you would be surprised how many people get it wrong.

$\frac{Numerator}{Denominator}$ = Numerator ÷ Denominator = …



Step 2: Move the Decimal out of the Denominator
There should not be a decimal in the denominator.

Ex. If the Denominator is 0.33, move the decimal two places over so that the denominator is 33. Similarly, you must also move the decimal over to the right in the numerator to compensate. Thus, if the problem was originally 0.006 ÷ 0.33, it now becomes 0.6 ÷33

Step 3: Do Long Division
Pretty self-explanatory. Do Long Division, if the number looks like it is becoming irrational, I would suggest rounding it off after about 5 digits or so.