LESSON 6.5 : TRAPEZOIDS

Pages 276-283

<u>LESSON 68</u>
Recall the definition of a **rational number** -- it can be expressed as a fraction of integers. All real numbers are either *rational* or *irrational*. As a reminder, irrational numbers include examples such as the square root of 2 and pi.

Observe the rational expressions in the examples. An expression does not have to have variables to be a rational expression. The number 5 is a rational expression simply because 5 itself is a rational number.

Review the denominator-numerator same-quantity rule. This probably is review for you, but the example a/b + x/y = (ay + bx)/by is no different than saying 9/4 + 8/3 + (9*3 + 8*4)/12.

Observe the more complex example at the bottom of page 276. Remember that when you have a fraction in the denominator such as b/c in this example, you can flip it over and put it in the numerator (c/b). Try examples 68.1 through 68.4. This is all about finding common denominators, using cancellation, and other tactics with which you are already familiar. Don't be intimidated by the many symbols. :)

Lastly, example 68.5 on page 278 -- this looks a little different but is really just saying the same thing. Recall that a negative power is simply the same as a positive power expressed in the denominator. So x^(-1) = 1/(x^1), and so forth. So the moment you see a term like a^-1, simply rewrite it as 1/a. Of course, a^(-2) would be 1/(a^2).

The best way to visualize WHY this is true is knowing what happens with exponents when we multiply. Just as a^1 * a^1 = a^(1+1) or a^2, a^(1) * a^(-1) = a/a = a^(1-1) = a^0 = 1.

<u>LESSON 69</u>
Monomials - pay attention to the definition - a *SINGLE* expression. Mono means *'one*.' Pay attention to the examples. The exponent must be a *whole number*. The coefficient can be any *real number*. And then of course there is *one* variable.

Note that constants such as 4 can be expressed as monomials in the example shown.

Bi means *'two,'* so **binomial** is simply two monomials connected by addition or subtraction. They show an example of multiplying binomial expressions--personally I am more accustomed to the FOIL (first, outer, inner, last) method in which (x + 3)(x -2) = x^2 + 3x - 2x - 6, and then you combine the two middle terms. We can discuss methods in class on Wednesday.

Tri means *'three,'* so **trinomial** is simply three monomials connected by addition or subtraction. Note that the solutions (i.e. $x^2 - 3x - 18$) from multiplying the binomials result in trinomials because there are 3 terms.

This is where it can get a little confusing. They are called *'quadratic'* because the highest power of the variable is 2. When we think of quad we think of 4, but in this case quadratic refers to 'square' equations. Think of 4 sides of a square. Cubic equations would involve a power of 3. That is much more complex and we won't discuss that any time soon. Quadratic equations will often be trinomials involving some form of $ax^2 + bx + c$, where an and b are coefficients and b is a constant. Sometimes the middle term won't be present though and you will just have a binomial of $2x^2 + 3$ for example.

Pay special attention to the 4 steps listed at the bottom of page 280. Read page 281 carefully and work through the factoring. Pay special attention to the bold text in the middle of the page.

Try examples 69.1 through 69.4 on page 282. If you have never done this before, this will be a bit complicated, so take your time. I will be available on the GroupMe, particularly from the hours of 9am to 11am, but also beyond that.