Index Card #10 (Back & Front)

Rational Expressions & Equations

Simplifying, Multiplying, Dividing Rational Expressions

Steps:

1. If Division — Take the reciprocal of the second fraction and change to multiplication
2. Factor ALL numerators and denominators GCF & ABC Method
3. Squiggle any factors that are connected with a + or - sign
4. Divide off any factors that are the same (+ / - sign) & simplify any others
5. Rewrite the answer as one fraction (Multiply what can be)

Adding and Subtracting Rational Expressions

Steps:

1. Factor ALL denominators
2. Find the common denominator — must contain each denominator
   - Binomials – Put the denominators together
     - The WHOLE BINOMIAL Must Be There
   - Otherwise – List the multiples of the numbers
     - Take the larger exponent of the variables
3. Find new numerators with the new denominator
4. Rewrite the numerators over one common denominator
5. Combine any like terms **** Keep the Denominator****
6. Simplify

Solving Rational Equations

1. Get a Common Denominator for ALL fractions
   - Remember to Factor all denominators if possible
   - Then find your LCD
2. Get the new numerators
3. Drop Denominators and Rewrite Numerators (NEW)
4. Solve the equation

- Remember that if there is an x^2 you need to get everything on one side = 0
  Check for GCF
  Use ABC Method
- Set each factor = 0 to solve

5. Check to make sure that the answer does not make the denominator ZERO

Complex Fractions

1. Find an LCD for the top fraction (Numerator)
   Remember to Factor all denominators
   Then find your LCD
2. Get the new numerators
3. Write over one common denominator
4. Combine like terms
5. Now repeat for the bottom fraction (Denominator)
6. Rewrite the Complex Fraction with Division
7. Take the reciprocal of the 2nd fraction and change to Multiplication
8. Factor all numerators and denominators
9. Divide off and Reduce