

## Rational Expressions and Equations Worksheet

Directions are VERY important when looking at the difference between SIMPLIFYING a rational EXPRESSION and SOLVING a rational EQUATION.

- When a problem says to SIMPLIFY, that means you should still have a combination of variables and numbers WITHOUT an equals sign.
- When a problem says to SOLVE, that means you should have a SOLUTION at the end like  $x=3$  or  $y=-4$ .

### SIMPLIFY.

When you see the word SIMPLIFY with an addition or subtraction problem, you should find the LCD of all the terms. Then you should multiply each term by a version of 1 (something over itself) to get each term to have the same denominator.

1.  $\frac{y^2}{y+3} - \frac{9}{y+3}$

2.  $\frac{3x+1}{2x-6} - \frac{x+2}{x-3}$

3.  $\frac{6}{x^2-1} + \frac{3}{x+1}$

4.  $\frac{3y}{y^2+7y-10} - \frac{2y}{y^2+6y+8}$

**SOLVE.**

When you see the word SOLVE, the first step you should do is multiply by the LCD to ELIMINATE the fractions. The second step should NOT involve fractions.

$$1. \frac{1}{y} + \frac{1}{4} = \frac{1}{2}$$

$$2. 1 - \frac{5}{x} = \frac{-6}{x^2}$$

$$3. \frac{3}{x-2} = \frac{2}{x-3}$$

$$4. \frac{a}{2} + \frac{4}{a-4} = \frac{a}{a-4}$$

$$5. \frac{3}{x-1} + \frac{2}{x+3} = \frac{-3}{x^2+2x-3}$$