

9.6 Solving Rational Equations

Do the following problems in your notebooks

Method 1: Cross Multiplying

- We want to do this when each side of the equation has only _____ fraction.

$$\text{Ex 1. } \frac{5}{x+2} = \frac{x}{3}$$

$$\text{Ex 2: } \frac{2}{x^2-x} = \frac{1}{x-1}$$

Practice Problems:

$$1. \frac{x}{5} = \frac{7}{3}$$

$$2. \frac{6}{x+2} = \frac{x}{4}$$

$$3. \frac{7}{x+1} = \frac{5}{x-3}$$

$$4. \frac{-56}{x} = \frac{9-x}{2}$$

Method 2: Multiplying by the LCD

- We want to do this when there is more than one _____ on a side of the equation.
 - When we multiply each term by the LCD, we get rid of all our _____.

$$\text{Ex 1. } \frac{2}{x} + \frac{1}{3} = \frac{4}{x}$$

$$\text{Ex 2. } \frac{4x+1}{x+1} = \frac{12}{x^2-1} + 3$$

Practice Problems

$$1. \frac{x}{x+9} = \frac{9}{x+9} + 2$$

$$2. \frac{7}{3x-12} - \frac{1}{x-4} = \frac{2}{3}$$

$$3. \frac{1}{x-4} + \frac{1}{x+4} = \frac{22}{x^2-16}$$

$$4. \frac{-4}{x-3} + 1 = \frac{-10}{x^2+x-12}$$

$$5. \frac{x+3}{x-5} = \frac{56-3x}{x^2-13x+40}$$

$$6. \frac{10}{x+3} - \frac{3}{5} = \frac{10x+1}{3x+9}$$