

Rational Equations

A **rational equation** is an equation that has one or more rational expressions in it.

To solve, we start by multiplying both sides of the equation by the _____, which will clear fractions.

Note: Always check your solutions when solving rational equations. (Why? Because multiplying by the LCD might introduce extra solutions that don't solve the original equation.)

Ex 1.

Solve: $\frac{x+6}{2x} + \frac{x+24}{5x} = 2$

Ex 2.

Solve: $\frac{8x}{x+1} = 4 - \frac{8}{x+1}$

Ex 3.

Solve: $\frac{x}{2} + \frac{12}{x} = 5$

Ex 4.

Solve: $\frac{3}{x-3} + \frac{5}{x-4} = \frac{x^2-20}{x^2-7x+12}$

Practice

1. Solve: $\frac{5}{2x} - \frac{x}{4} = \frac{3}{4}$

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

3. Solve: $\frac{3x+1}{x-4} = \frac{6x+5}{2x-7}$

4. Solve: $\frac{y}{y-2} - 3 = 1 + \frac{2}{y-2}$ (Don't forget to check your "solution"! Hint, hint... ☺)

5. Solve: $\frac{4}{x^2+3x-10} - \frac{1}{x^2+x-6} = \frac{3}{x^2-x-12}$

Q: What goes up and down but doesn't move?