

## Solving Rational Equations

Name: Answers

Per: \_\_\_\_\_

**Solving fractional (rational) equations:**

1. Factor the denominators, if needed.
2. Determine the **restricted values** (*values that make the denominator of each rational expression equal to zero*) for each rational expression in the given equation.
3. Find the Least Common Denominator (LCD) in the equation.
4. Clear the equation of all fractional forms.
5. Solve the resulting equivalent equation.
6. Check your answer(s) in the original equation. If a restricted value results as a solution to the equation found in step 5, then eliminate that solution (it is extraneous)

1.)  $\frac{2}{x-6} + \frac{7}{x+2} = \frac{4x+2}{x^2-4x-12}$

$x = -8$

2.)  $\frac{6}{x} + x = -5$

$x = 2, 3$

3.)  $\frac{2x}{x+2} - 2 = \frac{x-8}{x-2}$

$x = -4, 6$

4.)  $\frac{2x}{3x} - \frac{5}{6} = \frac{5}{2x}$

$x = -15$

5.)  $\frac{x^2-5}{x-5} = \frac{4x}{x-5}$

$x = -1$

6.)  $\frac{18}{5x+10} + \frac{4}{5} = \frac{-6}{x+2}$

$x = -14$

$$7.) \frac{15}{x-6} + \frac{7x}{x-6} = \frac{-6}{x-6}$$

$$x = -3$$

$$8.) \frac{3}{4} - \frac{2x}{4x-24} = \frac{8}{x-6}$$

$$x = 50$$

$$9.) \frac{3}{6x} - \frac{9}{12} = \frac{11}{4x}$$

$$x = -3$$

$$10.) \frac{2}{5} - \frac{7}{(x+6)} = \frac{9}{5(x+6)}$$

$$x = 16$$

$$11.) \frac{12}{x^2+5x+6} + \frac{7}{x+3} = \frac{2}{x+2}$$

$$x = -4$$

$$12.) \frac{1}{10} + \frac{4x}{5x} = \frac{-9}{2x}$$

$$x = -5$$

$$13.) \frac{14}{2x-5} + \frac{7x}{2x-5} = \frac{63}{2x-5}$$

$$x = 7$$

$$14.) \frac{-4x}{x-8} - \frac{11}{x-8} = \frac{25}{x-8}$$

$$x = -9$$