



Name _____ Date _____ Period _____

SOLVE RATIONAL EQUATIONS and INEQUALITIES WORKSHEET

Method

- Factor denominators
- Find the LCD
- Multiply **every** term by the LCD
- Reduce away the denominators; multiply the numerator by the remaining factor(s).
- Solve the equation.
- Check your answer. Restrictions?

$$1) \frac{x+3}{x} + \frac{2}{3} = 10$$

$$2) \frac{3x-2}{4} - \frac{x-1}{3} = \frac{1}{2}$$

$$3) \frac{4}{5}(2x+1) - \frac{4}{3}(x-2) = 2$$

$$4) \frac{x+2}{3x+2} = \frac{3x-1}{x+8}$$

$$5) \frac{3}{2x^2-3x-2} = \frac{x+2}{2x+1} - \frac{2x}{10-5x}$$

$$6) \frac{5}{x^2-9} = \frac{3}{x+3} - \frac{2}{x-3}$$

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

$$8) \frac{2-x}{x+1} + \frac{x+8}{x-2} = \frac{4-x}{x^2-x-2}$$

$$9) \frac{5x + 3}{x - 2} + \frac{2x - 1}{x + 3} - \frac{16x + 33}{x^2 + x - 6} = 1 - \frac{2x}{x + 3}$$

$$10) \frac{3x - 5}{2} - \frac{4x + 5}{12} = \frac{x - 3}{6} - 1$$

$$11) \frac{2x + 3}{x - 1} - \frac{3x - 1}{x + 1} - \frac{8x}{x^2 - 1} = 2$$

Solving Inequalities by Using the Test Point Method

1. Find the boundary points of the inequality.
2. Plot the boundary points on the number line. This divides the number line into regions.
3. Select a test point from each region and substitute it into the original inequality.
 - If a test point makes the original inequality true, then that region is part of the solution set.
4. Test the boundary points in the original inequality.
 - If a boundary point makes the original inequality true, then that point is part of the solution set.

$$12) \frac{(x-2)(x+1)}{(x-5)} \leq 0$$

$$13) \frac{8}{x-1} < 1$$

$$14) \frac{1}{x} + \frac{1}{2x} > 5$$

$$15) \frac{1}{x-1} + \frac{2}{x} < 0$$

$$16) 2 + \frac{1}{x-1} \geq 0$$

$$17) 7 + \frac{2}{x} < -\frac{5}{x}$$