Name

Class

Date



**Solving Rational Equations**

Solving rational equations uses the properties of simplifying rational expressions in an equation that solves for an unknown variable.



What is the the solution of 

**Solve**  The denominators are *x*, 2*x*, and 4. The LCD is 4*x*.

 Multiply each side by 4*x*.

 Distributive Property

8 + 6 = *x* Simplify.

14 = *x* Add.

Check your solution.

For some rational equations, you may have to solve a quadratic equation after multiplying each side of the equation by the LCD. There may be more than one solution.



What is the the solution of 

**Solve**  Multiply each side by the LCD, *x*2.

 Distributive Property

2*x*2 + 2*x* = 4 Simplify.

*x*2 + *x* = 2 Divide each side by 2.

*x*2 + *x* − 2 = 0 Collect terms on one side.

(*x* + 2)(*x* − 1) = 0 Factor the quadratic expression.

*x* + 2 = 0 *x* − 1 = 0 Zero-Product Property

*x* = −2 or *x* = 1 Solve for *x*.

Check your solutions.

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**Solving Rational Equations**

**Exercises**

**Solve each equation. Check your solutions.**

**1.**  **2. **

**3. ** **4. **

**5. ** **6. **

**7. ** **8. **

**9.** Your sister can paint a room in 5 hours. Your dad can paint the same room in  hours. How long will it take your sister and your dad to paint the room if they work together?

**Solve each equation. Check your solutions. If there is no solution, write *no solution*.**

**10.**  **11.** 

**12.**  **13.** 

**14.**  **15.** 