

Algebra 1B Live Lesson Class

Lesson 6-5: Solving Rational Equations
(Chapter 11-5 in textbook)



Agenda



1. Review topics and problems from Lesson 6-5: Solving Rational Equations

2. Use the 2-column note system to take better notes in math class. Bring your math notebook and pen or pencil to each math LiveLesson class.

2-Column Notes Template



1. Announcements/To Do's
2. School-Wide Learner Outcomes
3. LL Objectives
4. Vocabulary words
5. Problems
6. Summary (End of class)

1. Write down important details.
2. What are you going to work on this week?
3. Write down your own questions.
4. Definitions (fill in as we go)
5. Steps to solving problems
6. 1 or 2 sentences about the LL class.

Reminders and To – Do's



Information

1. Complete 1 math lesson per day.
2. Check your WebMail every day
3. Be prepared to spend 4 - 6 hours per day on schoolwork.
4. Remind your Learning Coach to take daily attendance

What to do

1. Go to your Planner in Connexus to find the math lesson for the day
2. Go to Connexus to find WebMail
3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's



Information

5. Go to the Message Board first for information about our math class.

6. Contact Mr. Elizondo for math questions.

Remember: You need at least 2 phone calls with Mr. Elizondo per semester.

What to do

6. Call (559) 549 - 3244 and leave a voicemail if call is not answered.

Make an appointment at:
<https://elizondo.youcanbook.me>

Send a WebMail

U6L5 - California Common Core State Standards



- HSA-REI.A.2: Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

U6L5 - Vocabulary



- rational equation

U6L5 - Objectives



At the end of this recording, students should be able to:

- Solve rational equations and proportions

U6L5 - Introduction



- A **rational equation** is an equation that contains one or more rational (fraction) expressions.
- You can solve a rational equation by first multiplying each side of the equation by the **LCD** (Lowest Common Denominator)
- When each side of a rational equation is a single rational expression, you can solve using the **Cross Products Property**.

U6L5 – Solving Equations with Rational Expressions



What is the solution?

$$\frac{5}{12} - \frac{1}{2x} = \frac{1}{3x}$$

$$(12x) \frac{5}{12} - (12x) \frac{1}{2x} = \frac{1}{3x} (12x)$$

$$5x - 6 = 4$$

$$5x = 10$$

$$\mathbf{x = 2}$$

Check your answer.

$$\frac{5}{12} - \frac{1}{2(2)} = \frac{1}{3(2)}$$

$$\frac{5}{12} - \frac{1}{4} = \frac{1}{6}$$

$$\frac{5}{12} - \frac{1}{4} \left(\frac{3}{3} \right) = \frac{1}{6} \left(\frac{2}{2} \right)$$

$$\frac{5}{12} - \frac{3}{12} = \frac{2}{12}$$

$$\frac{2}{12} = \frac{2}{12}$$

U6L5 – Solve by Factoring



What are the solutions?

$$1 - \frac{1}{x} = \frac{12}{x^2}$$

$$(x^2)1 - (x^2)\frac{1}{x} = \frac{12}{x^2}(x^2)$$

$$x^2 - x = 12$$

$$x^2 - x - 12 = 0$$

$$(x - 4)(x + 3) = 0$$

$$x - 4 = 0 \qquad x + 3 = 0$$

$$\mathbf{x = 4} \qquad \mathbf{x = -3}$$

U6L5 – Solve by Factoring



What are the solutions?

$$\frac{5}{y} = \frac{6}{y^2} - 6$$

$$(y^2)\frac{5}{y} = \frac{6}{y^2}(y^2) - 6(y^2)$$

$$5y = 6 - 6y^2$$

$$5y - 6 + 6y^2 = 6 - 6 - 6y^2 + 6y^2$$

$$6y^2 + 5y - 6 = 0$$

$$a \quad b \quad c$$

$$ac = 6(-6) = -36 \quad -1 \cdot 36$$

$$-2 \cdot 18$$

$$-3 \cdot 12$$

$$-4 \cdot 9$$

$$-6 \cdot 6$$

$$6y^2 + \underline{\quad} + \underline{\quad} - 6 = 0$$

$$6y^2 + 9y + -4y - 6 = 0$$

$$(6y^2 + 9y) + (-4y - 6) = 0$$

$$3y(2y + 3) - 2(2y + 3) = 0$$

$$(3y - 2)(2y + 3) = 0$$

$$3y - 2 = 0$$

$$2y - 3 = 0$$

$$3y = 2$$

$$2y = 3$$

$$y = \frac{2}{3}$$

$$y = \frac{3}{2} \text{ or } 1\frac{1}{2}$$

U6L5 – Solve by Factoring



What is the solution?

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

$$4(x+1) = 3(x+2)$$

$$4x + 4 = 3x + 6$$

$$4x - 3x = 6 - 4$$

$$\mathbf{x = 2}$$

U6L5 – Checking to find an Extraneous Solution



What is the solution?

$$\frac{6}{x+5} = \frac{x+3}{x+5}$$

$$6(x+5) = (x+3)(x+5)$$

$$6x + 30 = x^2 + 5x + 3x + 15$$

$$6x + 30 = x^2 + 8x + 15$$

$$0 = x^2 + 2x - 15$$

$$0 = (x+5)(x-3)$$

$$x + 5 = 0$$

$$x - 3 = 0$$

$$x = -5$$

$$x = 3$$

$$\frac{6}{-5+5} = \frac{-5+3}{-5+5}$$

$$\frac{6}{0} = \frac{-2}{0} \quad \text{Undefined, so } -5 \text{ is an extraneous solution}$$

$$\frac{6}{3+5} = \frac{3+3}{3+5}$$

$$\frac{6}{8} = \frac{6}{8} \quad \text{This equation has 1 solution, } \mathbf{x = 3}$$

Questions?



- Check the Message Board first
- Send a WebMail
- You can also make an appointment at <https://elizondo.youcanbook.me>
- You can also call me at (559) 549-3244. If I'm not available to answer your call, please leave a voicemail with your full name and phone number.