

Algebra 1B Live Lesson Class

Lesson 6-4: Adding and Subtracting Rational
Expressions
(Chapter 11-4 in textbook)



Agenda



1. Review topics and problems from U6L4 – Adding and Subtracting Rational Expressions

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.
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

U6L4 - California Common Core State Standards



- HSA-APR.D.7: Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions.
- HSA-APR.D.6: Rewrite simple rational expressions in different forms; write $a(x)/b(x)$ in the form $q(x) + r(x)/b(x)$, where $a(x)$, $b(x)$, $q(x)$, and $r(x)$ are polynomials with the degree of $r(x)$ less than the degree of $b(x)$, using inspection, long division, or, for the more complicated examples, a computer algebra system.

U6L4 - Objectives



- Add and subtract rational expressions

U6L4 - Introduction



- You can add rational expressions with like denominators

$$\frac{a}{c} + \frac{b}{c} = \frac{a+b}{c}$$

Remember:

Add the numerators,
keep the denominator

U6L4 – Adding Expressions



What is the sum?

$$\frac{4}{3y} + \frac{6}{3y} = \frac{4+6}{3y}$$
$$= \frac{10}{3y}$$

$$\frac{2a}{3a-4} + \frac{3a}{3a-4} = \frac{2a+3a}{3a-4}$$
$$= \frac{5a}{3a-4}$$

U6L4 – Subtracting Expressions



What is the difference?

$$\begin{aligned}\frac{9n-3}{10n-4} - \frac{3n+5}{10n-4} &= \frac{(9n-3) - (3n+5)}{10n-4} \\ &= \frac{9n-3-3n-5}{10n-4} \\ &= \frac{6n-8}{10n-4} \\ &= \frac{2(3n-4)}{2(5n-2)} \\ &= \frac{3n-4}{5n-2}\end{aligned}$$

U6L4 – Find the LCD



What is LCD of $6x$ and $2x^2$?

$$6x = 2 \cdot 3 \cdot x$$

$$2x^2 = 2 \cdot x \cdot x$$

$$\text{LCD} = 2 \cdot 3 \cdot x \cdot x = 6x^2$$

U6L4 – Adding Expressions



What is the sum of $\frac{3}{7y^4} + \frac{2}{3y^2}$

$$\begin{array}{r} \frac{3}{7y^4} \left(\frac{3}{3} \right) \\ + \frac{2}{3y^2} \left(\frac{7y^2}{7y^2} \right) \\ \hline \frac{9}{21y^4} \\ + \frac{14y^2}{21y^4} \\ \hline \frac{9 + 14y^2}{21y^4} \end{array}$$

$$7y^4 = 7 \cdot y \cdot y \cdot y \cdot y$$

$$3y^2 = 3 \cdot y \cdot y$$

$$LCD = 7 \cdot 3 \cdot y \cdot y \cdot y \cdot y = 21y^4$$

U6L4 – Subtracting Expressions



What is the difference?

$$\frac{3}{d-1} - \frac{2}{d+2}$$

$$\frac{3}{d-1} \left(\frac{d+2}{d+2} \right) = \frac{3d+6}{(d-1)(d+2)}$$

$$- \frac{2}{d+2} \left(\frac{d-1}{d-1} \right) = \frac{-2d+2}{(d-1)(d+2)}$$

$$\frac{3d+6-2d+2}{(d-1)(d+2)}$$

$$\frac{d+8}{d^2+d-2}$$

$$LCD: (d-1)(d+2)$$

U6L4 – Using Rational Expressions



A bicyclist rides 5 miles out and then rides back. His speed returning is reduced 20% because it is raining. Let r be his speed in miles per hour riding out. What is an expression that represents his total time in hours riding out and back?

$$\text{distance} = \text{rate} \cdot \text{time} \quad \frac{d}{r} = t$$
$$d = rt$$

$$\text{Time riding out: } \frac{5}{r}$$

$$\text{Time riding back: } \frac{5}{0.8r}$$

(Speed is reduced 20% $\rightarrow 0.80r$)

$$\text{Total time: } \frac{5}{r} + \frac{5}{0.80r}$$

$$\frac{5}{r} \left(\frac{0.8}{0.8} \right) \quad \frac{4}{0.8r}$$
$$+ \frac{5}{0.8r} \quad + \frac{5}{0.8r}$$

$$\frac{9}{0.8r}$$

$$t = \frac{9}{0.8r}$$

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.