

Algebra 1B Live Lesson Class

U6L3: Dividing Polynomials
(Chapter 11-3 in textbook)



Agenda



1. Review topics and problems from U6L3 – Dividing Polynomials

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

U6L3 - 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.

U6L3 - Objectives



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

- Divide polynomials

U6L3 - Introduction



Recall the properties of exponents

$$\frac{x^7}{x^2} = x^{7-2} = x^5$$

$$\frac{x^3}{x^9} = x^{3-9} = x^{-6} = \frac{1}{x^6}$$

U6L3 – Dividing by a Monomial



What is $(4a^3 + 10a^2 + 3a) \div 2a^2$

$$(4a^3 + 10a^2 + 3a) \div 2a^2$$

$$= (4a^3 + 10a^2 + 3a) \cdot \frac{1}{2a^2}$$

$$= \frac{4a^3}{2a^2} + \frac{10a^2}{2a^2} + \frac{3a}{2a^2}$$

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

U6L3 – Dividing Real Numbers



- You can divide polynomials using techniques that we use for dividing real numbers (long division).

$$\frac{234}{8} = 29 \frac{2}{8}$$

$$\begin{array}{r} 29 \\ 8 \overline{) 234} \\ \underline{- 16} \downarrow \\ 74 \\ \underline{- 72} \\ 2 \end{array}$$

U6L3 – Dividing by a Binomial



What is $(2m^2 - m - 3) \div (m + 1)$

$$\begin{array}{r} \overline{) 2m^2 - m - 3} \\ \underline{2m^2 + 2m} \\ -3m - 3 \\ \underline{ -3m - 3} \\ 0 \end{array}$$

$$2m(m + 1) = 2m^2 + 2m$$

$$-3(m + 1) = -3m - 3$$

U6L3 – Dividing by a Binomial



What is

$$(6n^2 - 3n - 5) \div (2n + 3)$$

$$\begin{array}{r} 3n - 6 + \frac{13}{2n+3} \\ 2n + 3 \overline{) 6n^2 - 3n - 5} \\ \underline{6n^2 + 9n} \quad \downarrow \\ -12n - 5 \\ \underline{-12n - 18} \\ 13 \end{array}$$

$$3n(2n + 3) = 6n^2 + 9n$$

$$-6(2n + 3) = -12n - 18$$

U6L3: Dividing Polynomials with a Zero Coefficient



What is $(q^4 + q^2 + q - 3) \div (q - 1)$

$$\begin{array}{r} q^3 + q^2 + 2q + 3 \\ q-1 \overline{) q^4 + 0q^3 + q^2 + q - 3} \\ \underline{- q^4 - q^3} \\ q^3 + q^2 \\ \underline{- q^3 - q^2} \\ 2q^2 + q \\ \underline{- 2q^2 - 2q} \\ 3q - 3 \\ \underline{- 3q - 3} \\ 0 \end{array}$$

$q^3(q-1) = q^4 - q^3$

$q^2(q-1) = q^3 - q^2$

$2q(q-1) = 2q^2 - 2q$

$3(q-1) = 3q - 3$

U6L3 - Reordering Terms



What is $(-7 - 10y + 6y^2) \div (4 + 3y)$

$$\begin{array}{r} 2y - 6 \\ 3y + 4 \overline{) 6y^2 - 10y - 7} \\ \underline{- 6y^2 + 8y} \\ -18y - 7 \\ \underline{- -18y - 24} \\ 17 \end{array}$$

$$2y(3y + 4) = 6y^2 + 8y$$

$$-6(3y + 4) = -18y - 24$$

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.

U6L3 - Review Problems



Divide.

$$1) (-104d^8 + 64d^7 - 86d^6 + 96d^5) \div 2d^4$$

$$\begin{array}{r} \overline{) -104d^8 + 64d^7 - 86d^6 + 96d^5} \\ \underline{+104d^8} \\ 64d^7 \\ \underline{ -64d^7} \\ -86d^6 \\ \underline{ +86d^6} \\ +96d^5 \\ \underline{ -96d^5} \\ 0 \end{array}$$

U6L3 - Review Problems



Divide.

$$2) (x^2 + 7x + 12) \div (x + 4)$$

$$\frac{(x^2 + 7x + 12)}{1} \cdot \frac{1}{x + 4}$$

$$\frac{\cancel{(x + 4)}(x + 3)}{1} \cdot \frac{1}{\cancel{x + 4}}$$

$$x + 3$$

$$\begin{array}{r} x + 3 \\ x + 4 \overline{) x^2 + 7x + 12} \\ \underline{-x^2 - 4x} \\ 3x + 12 \\ \underline{-3x - 12} \\ 0 \end{array}$$

U6L3 - Review Problems



Divide.

$$3) (2q^2 - 4q - 240) \div (q - 12)$$

$$\begin{array}{r} 2q + 20 \\ q - 12 \overline{) 2q^2 - 4q - 240} \\ \underline{-2q^2 + 24q} \\ 20q - 240 \\ \underline{-20q + 240} \\ 0 \end{array}$$

$$2q + 20$$

U6L3 - Review Problems



Divide.

$$4) (39w + 14 + 3w^2) \div (9 + 3w)$$

$$(3w^2 + 39w + 14) \div (3w + 9)$$

$$\begin{array}{r} w + 10 \\ 3w + 9 \overline{) 3w^2 + 39w + 14} \\ \underline{-3w^2 - 9w} \\ 30w + 14 \\ \underline{-30w - 90} \\ -76 \end{array}$$

$$w + 10 + \frac{-76}{3w + 9}$$

or

$$w + 10 - \frac{76}{3w + 9}$$

U6L3 - Review Problems



Divide.

$$5) (c^4 - 16) \div (c - 2)$$

$$(c^2 - 4)(c^2 + 4) \cdot \frac{1}{c - 2}$$

$$\cancel{(c - 2)}(c + 2)(c^2 + 4) \cdot \frac{1}{\cancel{c - 2}}$$

$$(c + 2)(c^2 + 4)$$

$$c^3 + 4c + 2c^2 + 8$$

$$c^3 + 2c^2 + 4c + 8$$