Algebra 1B Live Lesson

U3L5 - Factoring $x^2 + bx + c$

(Chapter 8-5 in textbook)

Agenda

1. Review selected problems and topics from U3L5.

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	1. Write down important details.
2. School-Wide Learner Outcomes	2. What are you going to work on this week?
3. LL Objectives	
4. Vocabulary words	4. Definitions (fill in as we go)
5. Problems	5. Steps to solving problems
6. Summary (End of class)	6. 1 or 2 sentences about the LL class.

Reminders and To – Do's

Information	What to do
1. Complete 1 math lesson per day.	1. Go to your Planner in Connexus to find the math lesson for the day
2. Check your WebMail every day	2. Go to Connexus to find WebMail
3. Be prepared to spend 4 - 6 hours per day on schoolwork.	3. Complete lessons for the day from your Planner. Do not get behind on lessons.
4. Remind your Learning Coach to take daily attendance	4. Have your Learning Coach log into Connexus daily.

Reminders and To – Do's

Information	What to do
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.	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

U3L5 – California Common Core State Standards

- HSA-SSE.B.3: Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

U3L5 - Objectives

- Factor trinomials in the form $x^2 + bx + c$

U3L5 - Vocabulary

- trinomial
- binomial
- polynomials
- Distributive Property

U3L5 – Introduction

You can write some trinomials of the form $x^2 + bx + c$ as the product of two binomials.

Consider this product of two binomials:

$$(x+3)(x+7) =$$

$$x^2 + (7+3)x + 3 \bullet 7 = x^2 + 10x + 21$$

The coefficient of the x^2 is 1.

The coefficient of the x is 10, which is the sum of 3 and 7

The trinomial's constant term, 21, is the product of 3 and 7.

To factor a trinomial of the form $x^2 + bx + c$, you must find 2 numbers that have a **sum of b** and a **product of c**.

U3L5 - Factoring $x^2 + bx + c$, where b>0 and c>0

- What is the factored form of $x^2 + 8x + 15$?
  - List the pairs of factors of 15.
  - Identify the pair that has a sum of 8.

Factors of 15	Sum of Factors
1 and 15	16
3 and 5	8 ✔

$$x^2 + 8x + 15 = (x + 3)(x + 5)$$

Check $(x + 3)(x + 5) = x^2 + 5x + 3x + 15$

$= x^2 + 8x + 15$ ✔

U3L5 - Factoring $x^2 + bx + c$, where b<0 and c>0

- What is the factored form of $x^2 - 11x + 24$?
  - List the **negative factors** of 24.
  - Identify the pair that has a sum of -11.

Factors of 24	Sum of Factors
−1 and −24	−25
−2 and −12	−14
−3 and −8	−11 ✔
−4 and −6	−10

$$x^2 - 11x + 24 = (x - 3)(x - 8)$$

Check $(x - 3)(x - 8) = x^2 - 8x - 3x + 24$

$= x^2 - 11x + 24$ ✔

U3L5 - Factoring $x^2 + bx + c$, where $c<0$

- What is the factored form of $x^2 + 2x - 15$?
  - List the factors of -15.
  - Identify the pair that has a sum of 2.

Factors of −15	Sum of Factors
1 and −15	−14
−1 and 15	14
3 and −5	−2
−3 and 5	2 ✔

$$x^2 + 2x - 15 = (x - 3)(x + 5)$$

U3L5 - Applying Factoring Trinomials

- The area of a rectangle is given by the trinomial $x^2 - 2x - 35$. What are the possible dimensions of the rectangle? Use factoring.
  - List the factors of -35.
  - Identify the pair that has a sum of -2.

Factors of −35	Sum of Factors
1 and −35	−34
−1 and 35	34
5 and −7	−2 ✔
−5 and 7	2

$$x^2 - 2x - 35 = (x + 5)(x - 7)$$

So the possible dimensions of the rectangle are $x + 5$ and $x - 7$.

U3L5 - Factoring a Trinomial With 2 Variables

- What is the factored form of $x^2 + 6xy - 55y^2$

  - List the pairs factors of -55.
  - Identify the pair that has a sum of 6.

Factors of −55	Sum of Factors
1 and −55	−54
−1 and 55	54
5 and −11	−6
−5 and 11	6 ✔

$$x^2 + 6xy - 55y^2 = (x - 5y)(x + 11y)$$

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.