Algebra 1B Live Lesson

U3L2 - Multiplying and Factoring Polynomials
(Chapter 8-2 in textbook)

Agenda

1. Review selected problems and topics from U3L2.

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?

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

What to do

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

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

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

U3L2 – California Common Core State Standards

- HSA-APR.A.1: Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

U3L2 - Objectives

- Multiply a monomial by a polynomial

- Factor a monomial from a polynomial

U3L2 - Vocabulary

- polynomials

- Distributive Property

U3L2 – Introduction

We will be using the Distributive Property to multiply polynomials.

$$a(b + c) = ab + ac$$

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

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

$$6x^2 + 2x$$

Simplify: $-x^3(9x^4 - 2x^3 + 7)$

$$-x^3(9x^4) \cdot -x^3(-2x^3) \cdot -x^3(7)$$

$$-9x^7 + 2x^6 - 7x^3$$

Simplify: $-3c(8 + 2c - c^3)$

$$-3c(8) \cdot -3c(2c) - 3c(c^3)$$

$$\boldsymbol{-24c - 6c^2 - 3c^4}$$

U3L2 - FINDING THE GCF

Factoring a polynomial reverses the multiplication process.

The first step is to find the greatest common factor (GCF) of the polynomial's terms.

What is the GCF of the terms of $5x^3 + 25x^2 + 45x$?

List the prime factors of each term. Identify the factors common to all terms.

$$5x^3 = 5 \cdot x \cdot x \cdot x$$

$$25x^2 = 5 \cdot 5 \cdot x \cdot x$$

$$45x = 3 \cdot 3 \cdot 5 \cdot x$$

The GCF is $5 \cdot x$, or $5x$.

What is the factored form of $9x^6 + 15x^4 + 12x^2$?

$$9x^6 = 3 \bullet 3 \bullet x \bullet x \bullet x \bullet x \bullet x \bullet x$$

$$15x^4 = 5 \bullet 3 \bullet x \bullet x \bullet x \bullet x$$

$$12x^2 = 4 \bullet 3 \bullet x \bullet x$$

The GCF is

$$9x^6 + 15x^4 + 12x^2 = 3x^2(3x^4) + 3x^2(5x^2) + 3x^2(4)$$

$$= 3x^2(3x^4 + 5x^2 + 4)$$

Factor the polynomial: $18h^4 - 27h^2 + 18h$

$$2 \cdot 3 \cdot 3 \cdot h \cdot h \cdot h \cdot h - 3 \cdot 3 \cdot 3 \cdot h \cdot h + 2 \cdot 3 \cdot 3 \cdot h$$
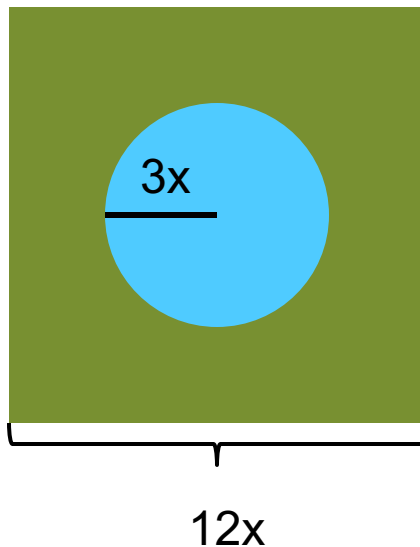
$$3 \cdot 3 \cdot h(2 \cdot h \cdot h \cdot h - 3 \cdot h + 2)$$

$$\mathbf{9h(2h^3 - 3h + 2)}$$

U3L2 – Factoring a Polynomial Model

There is a circular pool in the middle of a square garden. The radius of the circle is 3x. The side length of the garden is 12x. What is the area of the part of the garden that is not covered by the pool?

3x

12x

Find the area of the square.

$$A_1 = s^2$$
$$= (12x)^2$$
$$= 144x^2$$

Find the area of the circle.

$$A_2 = \pi r^2$$
$$= \pi(3x)^2$$
$$= \pi 9x^2$$

U3L2 – Factoring a Polynomial Model

There is a circular pool in the middle of a square garden. The radius of the circle is 3x. The side length of the garden is 12x. What is the area of the part of the garden that is not covered by the pool?

3x

12x
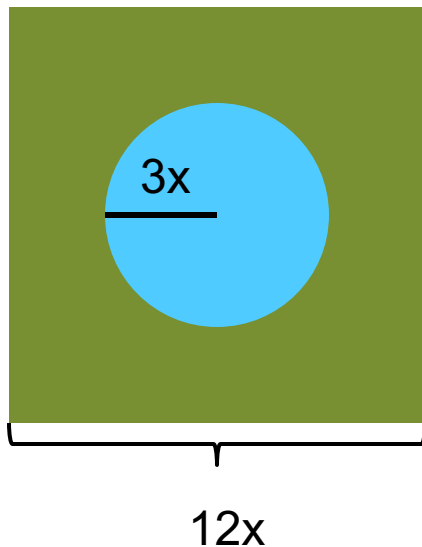
The area of the shaded region.

$$A_1 - A_2 = 144x^2 - \pi 9x^2$$

Factor the expression.

The GCF is $9x^2$.

$$144x^2 - \pi 9x^2 = 9x^2(16) - 9x^2(\pi)$$

$$\mathbf{9x^2(16 - \pi)}$$

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.