Reflections on My Congruence Theory Presentation

Logic and Dialectics Course
National Experimental High School at Hsinchu Science Park, G10 Eve Wang

Overview

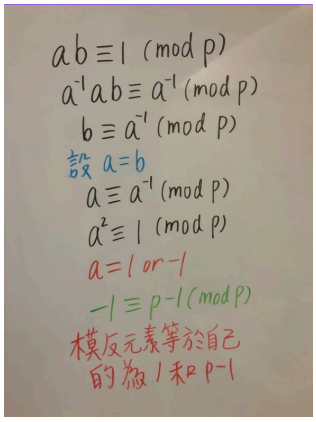
For our Logic and Dialectics course, each student gave a full-period presentation on a mathematical topic. I chose Congruence Theory, a central concept in number theory. I wanted to go beyond the textbook and truly grasp the reasoning behind modular arithmetic. It was my first time presenting alone for an entire class, and I aimed to make my talk both rigorous and engaging for my classmates.

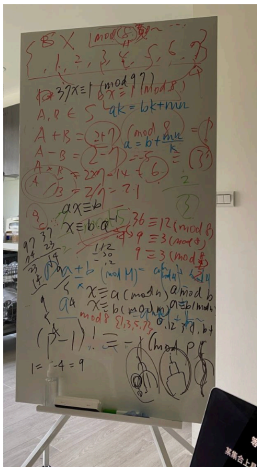
Preparation Process

At first, I struggled to understand why modular inverses exist and what makes them valid. To solve this, I went back to the basics (exploring sets, equivalence relations, and modular groups) and even used a small whiteboard to visualize how congruence behaves under modular operations.

Writing and drawing the relationships by hand helped me "see" the logic: a modular inverse exists only when a number and the modulus are coprime, allowing division within the modular system. This hands-on process turned something abstract into something intuitive and concrete.

When preparing my slides, I used a dark background with contrasting text to reduce eye strain and keep the class focused. I even opened with a lighthearted joke about a fish called "銅魚 (Bronze Fish)" , which a playful pun on the Chinese word for "congruence." This helped lighten the atmosphere before diving into the theory.





Feedback and Results

My classmates rated the presentation highly in every aspect, including content depth, clarity, organization, confidence, and use of visual aids. Many commented that the flow was logical and easy to follow, and they especially liked the humorous introduction.

A few pointed out that some explanations went a bit fast, which taught me the importance of pacing when sharing technical topics. Overall, I was glad to see my classmates not only understood congruence theory but also found it interesting.

Overall Evaluation (Based on Peer Ratings)

★ **Expression** 4.81 / 5
Clear and fluent delivery with accurate terms.

★ **Structure & Organization** 4.81 / 5
The presentation was well-organized, logical, and had appropriate introductions and conclusions.

★ **Content Depth** 4.90 / 5
The content demonstrated solid understanding and insightful analysis of the topic.

★ **Attitude & Confidence** 4.86 / 5
Presenters showed confidence and positive attitude, responding to questions smoothly without tension.

★ **Use of Visual Aids** 4.81 / 5
Visual aids were clear, effective, and enhanced the overall presentation.

Group 10 Eve's Classmates Feedback

The presentation was well-organized with great time control.
"Bronze Fish" was super detailed XD the whole explanation was clear and easy to follow!
Steel Fish was awesome. So creative!
Loved the fish collection, really impressive.
Everything was complete, no gaps at all.
Putting the Steel Fish idea on every slide was such a cool move!
Bravo! Totally get it! Bronze Fish!
The fish jokes cracked me up for a long time.
Maybe some parts went a bit too fast.
So good!!
Teamwork was fantastic!
Clear structure and easy to understand.
Steel Fish was full of creativity.
The content had depth and fun twists that really kept us energized!
I couldn't find the fish on a few slides though😅
The 🐟 is super creative and definitely woke everyone up!
Hilarious point: "Fish is tasty" (I mean, fish 🐟😂).
Learned so many cool things!
That Bronze Fish moment had us all laughing so hard!

Personal Reflection

This experience taught me that understanding something is very different from explaining it. Translating abstract math into a story others can follow was both challenging and rewarding. I learned to think from the audience's perspective and to decide what details were essential and how to visualize invisible concepts. It also pushed me beyond my comfort zone in public speaking, combining my artistic sense with logical presentation. Most importantly, I discovered that sharing knowledge can be deeply enjoyable. This project gave me a glimpse of how I might connect my love for reasoning, communication, and design in future academic pursuits.