

# What is communication?



“Mother looked at him in helpless bafflement. “But I could have sworn I said...[sic] I needed a ...[sic]” And as she spoke, her hands moved ... Now Ivan remembered that she *had* made that gesture, and saw what he had not noticed before, that Katerina’s hands imitated it.” *Enchantment* by Orson Scott Card.

# Typesetting mathematics on the Web



- Mathematics is a language with four components:
  - Spoken
  - Written
  - Visual
    - Graphs/drawings
    - Gestures
- Mathematics is best understood when we combine all of these components.

# What makes communicating mathematics on the web hard?

- When we restrict ourselves to communication on the web, we lose the spoken and gesture components.
- Math has often been transmitted in a written format so this is not a new issue. How has it been solved in the past?
  - ▣ Precise notation solves a lot of these problems.
  - ▣ But typesetting mathematics on the web well has long been a problem.

# Let's do an activity

- While you are working through the activity
  - ▣ Think about which components of communication you are using in your groups.
  - ▣ Think about how you would present the results of the activity as a presentation at the board.
  - ▣ Think about how you would write up the results of the activity on the web.
    - What would you need to know how to do on a computer with mathematics that you don't currently know?

So what did you need to learn?



# Why LaTeX or TeX?



- A typesetting program developed in the 70's by Donald E. Knuth
  - Designed to typeset mathematics WELL.
  - Created to solve problems like fonts/kerning/etc. that are mostly fixed now
  - Creates an entirely text document that is then compiled
  - Stable

# So let's debrief



- How would we type up the activity
  - On a Wiki
  - Just as a web page in HTML code
  - In a Blog?

# My class wiki

- A detailed set of class notes typeset by an assigned student each night.
- Students thoughts about the wiki
- Specific examples of student wiki entries.
  - First day on Trig Identities
  - Informal intro to continuity
  - Good math is not enough
  - Less well typeset
  - Some combination

# Concluding Thoughts



- It's getting easier and easier to typeset mathematics on the web, but it still has a learning curve.
- Students will benefit from:
  - ▣ Thinking about what good notes look like
  - ▣ Learning to write about mathematics in an expository fashion.
  - ▣ Learning to type mathematics.
- I benefit by having a visual record of what at least one specific student understood from that day.
- BUT IT IS A LOT OF WORK.