"Software" Review Topics

Presentations should be useful for the audience. Thus they should be more "practical" than "theoretical", and include a presentation of the software (where applicable). Starred topics should be covered.

1. **PSTricks*.** (General tool.) A tool to include graphics in LaTeX files.

   Starting point: Chapter 10 of the textbook.

2. **Beamer*.** (General tool.) A LaTeX presentation tool.

   Starting point: Chapter 11 of the textbook.

3. **Technology History: Slide rules and logarithmic tables.** (Precalculus.)

   Starting point: Literature search. Virtual slide rules can be found e.g. at http://www.antiquark.com/sliderule/sim

4. **Technology History: Planimeters.** (Vector Calculus.) A mechanical area measuring tool.

   Starting point: Wikipedia entry for "Planimeter"

5. **RPN calculators and high school math competitions*.** (High school.)

   Starting point: Literature search.

6. **SmartBoard.** (Elementary school–College.)

7. **TI-Nspire.** (Middle school–College.)

8. **R.** (Statistics courses.) Statistics software.

   Starting point: Chapter 14 of the textbook.

9. **Maxima.** (High school–College.) A "free" computer algebra system.

   Starting point: http://maxima.sourceforge.net/

10. **MatLab*.** (Matrix Algebra–Research.) Numerical computing software.

    Starting point: Chapter 13 of the textbook.

11. **Octave.** (Matrix Algebra–Research.) Numerical computing software. Octave is a "free" program similar to MatLab. Probably need access to Linux OS.

    Starting point: Chapter 13 of the textbook.

12. **Using spreadsheets in the Mathematics classroom.** (Middle school–College.)

    Starting point: Literature search.

13. **Effectiveness of technology use by Mathematics students.** (All levels.)

    Starting point: Literature search.

14. **Logo*.** (Elementary school–College.) A programming language for kids.

    Starting point: Wikipedia entry for "Logo (programming language)"

15. **LEGO Mindstorms*.** (Middle school–College.) Robotics.

    Starting point: Need to have access to a Mindstorms package.

16. **Stella.** (Precalculus–Advanced Modeling.) A simulation and modeling software program.

    Starting points: http://www.iseesystems.com/ and Andrew Ford: Modeling the Environment, 2nd ed., Island Press 2009 (available from the instructor).

17. **Mizar.** (Proofs course–Research.) A Proof Assistant program.

    Starting point: http://mizar.org/

18. **Cinderella.** (College Geometry.) Geometry software for Euclidean and non-Euclidean geometry. Requires some knowledge of non-Euclidean geometry.

    Starting point: http://www.cinderella.de/tiki-index.php