

“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. **MatLab***. (Matrix Algebra–Research.) Numerical computing software.
5. **Logo***. (Elementary school–College.) A programming language for kids.
Starting point: Wikipedia entry for “Logo (programming language)”
6. **LEGO Mindstorms***. (Middle school–College.) Robotics.
Starting point: Need to have access to a Mindstorms package.
Starting point: Chapter 13 of the textbook.
7. **TI-Nspire**. (Middle school–College.)
8. **R**. (Statistics courses.) “Free” Statistics software. Website: <https://www.r-project.org/>.
Starting point: Chapter 14 of the textbook.
9. **DESMOS**. (High school–College.) A “free” graphing calculator.
Starting point: <https://www.desmos.com/>
10. **Maxima**. (High school–College.) A “free” computer algebra system.
Starting point: <http://maxima.sourceforge.net/>
11. **GNU Octave**. (Matrix Algebra–Research.) Numerical computing software. Octave is a “free” program similar to MatLab, available at <https://www.gnu.org/software/octave/index>.
Starting point: Chapter 13 of the textbook.
12. **Stella**. (Precalculus–Advanced Modeling.) A simulation and modeling software program. Very expensive, free 30-day trial.
Starting points: <https://www.iseesystems.com/store/products/trial.aspx> and Andrew Ford: Modeling the Environment, 2nd ed., Island Press 2009.
A similar “free” simulation and modeling software is VenSim PLE at <https://vensim.com/free-download/>

13. **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>