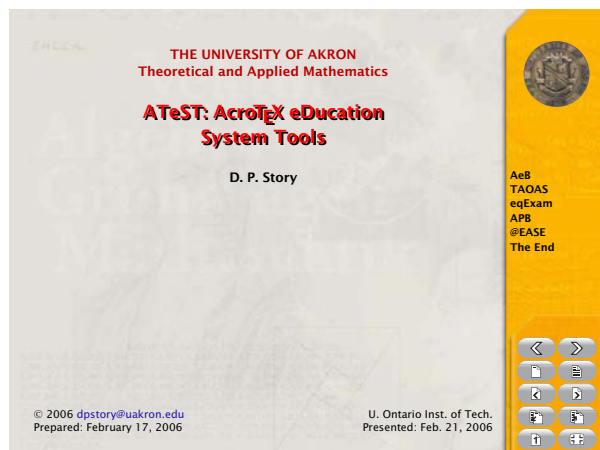


Summary of Presentation with Notes

D. P. Story



Slide 1

ATeST: AcroTeX eEducation System Tools

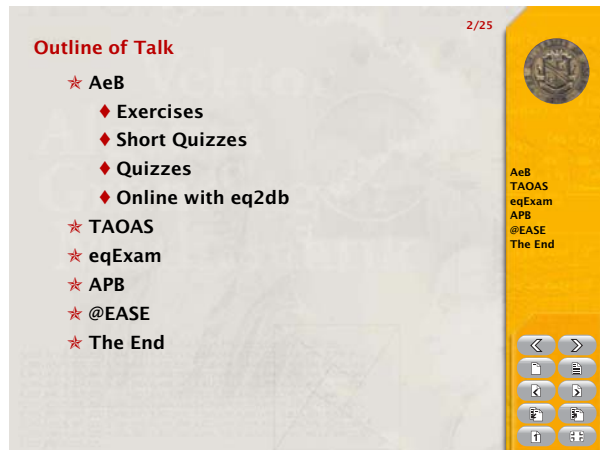
D. P. Story

Abstract: This talk surveys the various tools and systems available from AcroTeX for authoring interactive electronic content with a PDF delivery.

Using AcroTeX software, offline content can be authored with exercises, examples and quizzes, and can be distributed for self-study and self-assessment.

For online assessment, a demonstration of TAOAS (The AcroTeX Online Assessment System) will be presented. Alternative online assessment methods available from AcroTeX will also be examined.

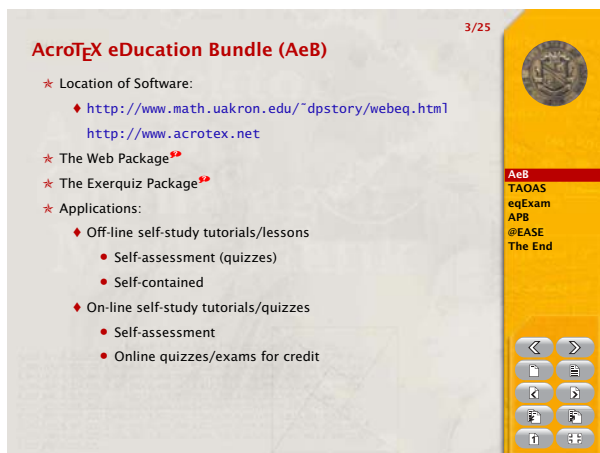
Other AcroTeX software for producing paper exams (eqExam), assembling an exam from a database of questions (@EASE), and for creating PowerPoint-like presentations (APB) will also be discussed.



Slide 2

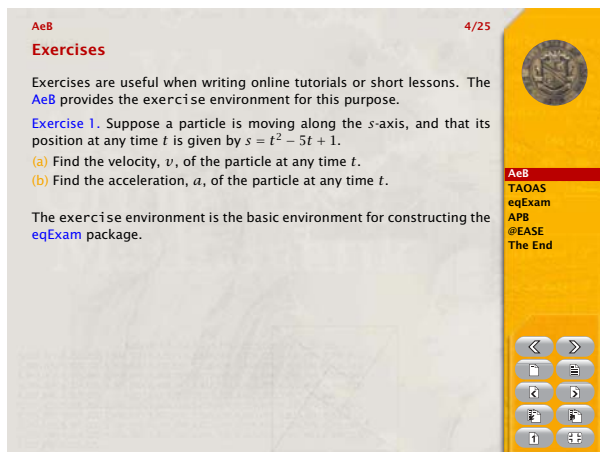
ATeST is a collection of software tools to help author interactive content in the Portable Document Format (PDF).

One authors the content using L^AT_EX, then converts to PDF using Acrobat Distiller, or one of the applications pdftex or dvipdfm.



Slide 3

- AcroTeX: <http://www.acrotex.net>
- The AeB has a number of components
 - Web: Page layout, overlay manager, options for screen display, or for paper.
 - Exerquiz: Used to create interactive exercises and quizzes
 - insdljs: Used to create document JavaScript and open actions
 - eforms: Used to create form fields, and to associate JavaScript actions
 - dljslib: A library of JavaScript functions used to extend the types of problems Exerquiz quiz can process.
 - eq2db: A LaTeX package with server-side scripts for saving summary data.

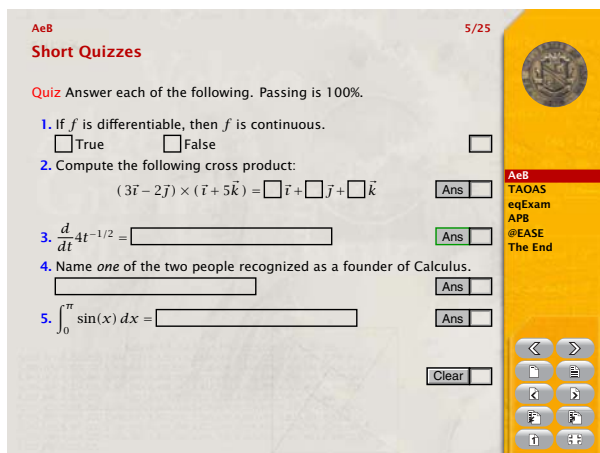


Slide 4

The exercise Environment

Using the exercise environment, one can create single question exercises, or exercises with multiple parts. Solutions can be optionally included. Solutions can be placed immediately after the question or placed at the end of the document, connected to the question by a link.

The exercise environment is appropriate for exercises as part of the tutorial, or a practice set. The environment is used by the eqExam package.



Slide 5

The shortquiz Environment

Using the shortquiz environment, one can create quizzes with *immediate feedback*. As soon as the student responds to a question, the student is informed of the correctness of the response. Answers and solutions can optionally be included. Problem types include multiple choice, text fill-in and math fill-in.

This type of quiz is suitable for self-assessment, perhaps within the context of a tutorial or focused help-file.

AeB 6/25

Quizzes

Begin Answer each of the following. Passing is 100%.

1. (10pts) Let $f(x) = x^3 - 4x^2 + x - 1$. Determine the equation of the line tangent to the graph of f at $x = 1$.

(a) (3pts) Compute the derivative

$f'(x) =$ **Ans**

(b) (4pts) Now, compute each of the following numerical results.

(i) Compute $f'(1) =$ **Ans** (ii) Compute $f(1) =$ **Ans**

(c) (3pts) Finally, using the information above, enter the equation of the line tangent to the graph of f at $x = 1$.

Tangent line:

End **Correct**

Answers:

Slide 6

AeB 7/25

Online with eq2db

Summary data from quizzes produced by the AeB can be submitted to a web server. The eq2db Package allows any of three options

★ Options of eq2db Package:

- ◆ eqRecord: Save to a database on sever-side.
- ◆ eqEmail: Send quiz data to an email address.
- ◆ eqText: Save quiz data to a tab-delimited text file. Read with an spreadsheet application.

AeB
TAOAS
eqExam
APB
@EASE
The End

Slide 7

AeB 8/25

TAOAS

- ★ TAOAS: acronym for The AcroTEx Online Assessment System
- ★ Used in classroom for two years, by myself and Dr. Price, University of Akron
- ★ Local: Demo of TAOAS
- ★ External URL:
 - ◆ <http://fbsd1.cs.uakron.edu/dpstory/acrologin.asp>
 - ◆ Select Math 101 from the dropdown menu
 - ◆ Username: uoit
 - ◆ Password: guest

AeB
TAOAS
eqExam
APB
@EASE
The End

Slide 8

The quiz Environment

Using the quiz environment, one can create quizzes with *delayed feedback*. The student must “begin” the quiz, and when finished, “end” the quiz. Quiz is graded client-side, answers and solutions are optional.

The quiz is suitable for self-assessment or for online examination for class credit.

Student Projects: Exerquiz has hooks to extend the type of questions it can process. A student project would be to read the Exerquiz documentation, and create a new type of question that can be processed. New JavaScript functions can be added to the JavaScript library (The dljslib Package).

Online with eq2db

A package complementary to AeB. Used to convert self-contained quizzes to online quizzes. Summary data is sent server-side. Options for saving to a database, saving to a tab-delimited text file, and sending data via email.

The package comes with a server-side script (vbscript). Provided script requires **Microsoft IIS** (Windows server platform). The **Acrobat FDF Toolkit** is required as well.^a

Student Projects: Extend the functionality of eq2db to other server platforms.

^a<http://partners.adobe.com/public/developer/acrobat/devcenter.html>

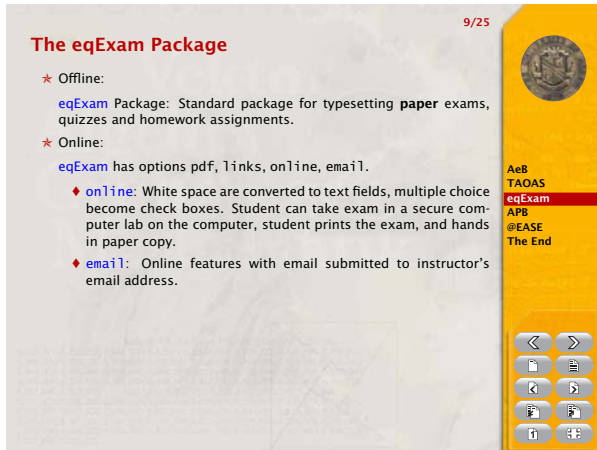
TAOAS

A complete online quizzing system. Featuring an html front end with student login. Quizzes are in PDF, after quiz period, solutions (for screen and for paper) are provided with student responses pre-populated.

Tryout:

- <http://fbsd1.cs.uakron.edu/dpstory/acrologin.asp>
- Select “Math 101” from the dropdown menu
- Username: uoit
- Password: guest

Student Projects: Html front end needs work. Make more friendly for management. TAOAS requires a **Microsoft IIS** (Windows server platform), can be ported to other platforms.



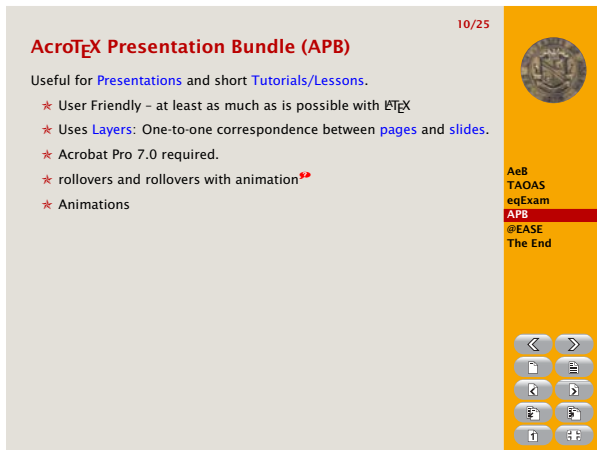
Slide 9

The eqExam Package

The eqExam Package that I've used in my classes for many years. I've enhanced it for online work when I made it publicly available.

The online features:

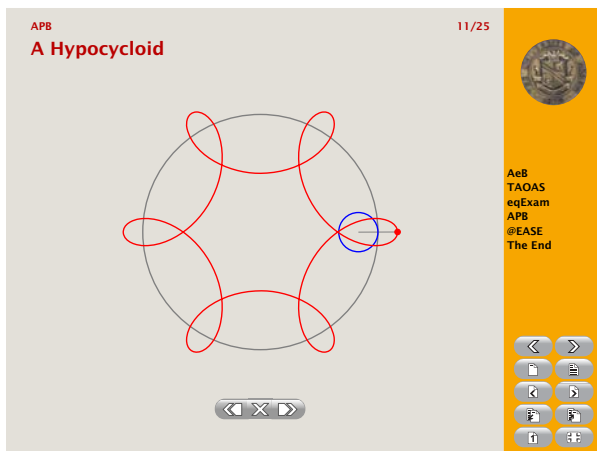
- **online**: Exams are taken in a secure location. Vertical space becomes a multi-line form text field, fill-in questions become text fields, multiple choice questions become checkboxes. Students fill out the exam on the computer, prints it out, and hands in a paper version. Useful for non-scientific areas where no special symbols are needed.
- **email**: Same as online, but exam can be taken within a browser, results are submitted via email. Can be used for online surveys



Slide 10

APB: AcroTeX Presentation Bundle

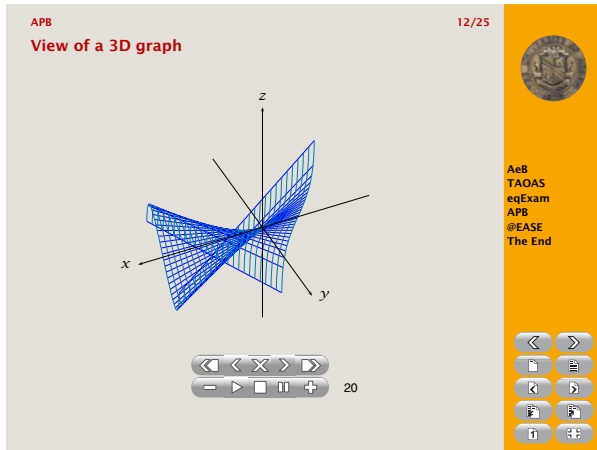
- Available at <http://www.acrotex.net>
- Useful for formal presentations, classroom presentations, short lessons/tutorials
- Acrobat Professional 7.0 required. Must use Acrobat Distiller to produce the PDF
- One-to-one correspondence between slides and pages
- Talking points, Slide shows, animations, rollovers, thumbnails with annotations



Slide 11

This slide shows an animation of the hypocycloid. The animation plays at a fixed rate. Simple controls for starting, stopping and reversing animation.

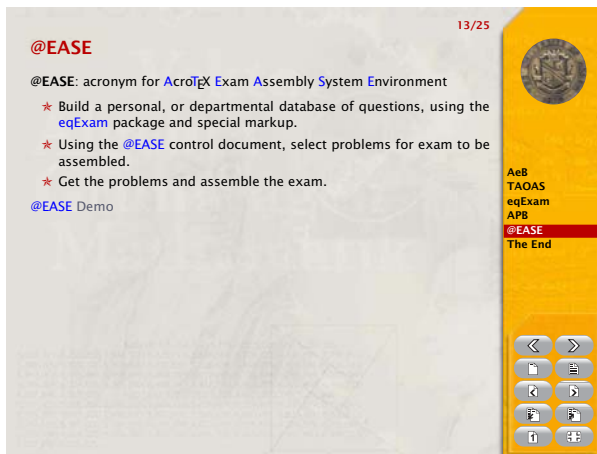
PSTricks was used to create this sequence of graphs.



Slide 12

This slide shows a surface in 3D, the animation rotates the graph around the z-axis. The controls provide for this animation allow pausing, stepping through, and changing speed.

PSTricks was used to create this sequence of graphs.



Slide 13

@EASE

The AcroTeX Exam Assembly System Environment

- Develop *personal* DB of PDF documents using the eqExam Package with special markup.
- Control document has a file system to link to and organize DB documents. Select questions, assemble eqExam document.
- Can randomize questions, randomize distractions
- A question can have multiple renditions
- Can construct a multiple version exam document
- Available from <http://www.acrotex.net>

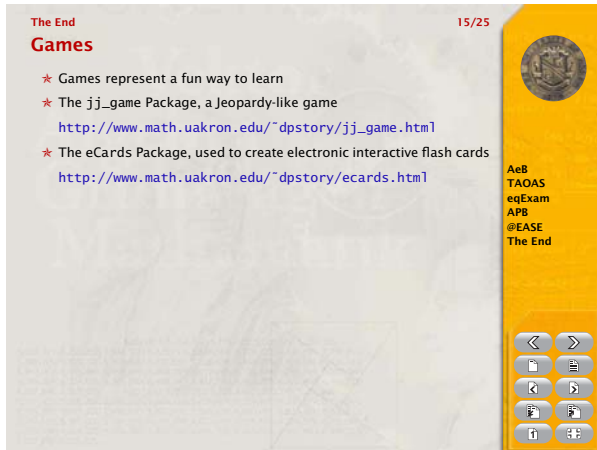
Projects: Develop DB documents for courses at your University. Use them to build exams for large section courses that require a number of equivalent exams.



Slide 14

Many thanks to Dean Smith for inviting me, and to the University of Ontario Institute of Technology for hosting my visit. Perhaps we shall meet again, now I simply must get back to work!

Regards, D. P. Story



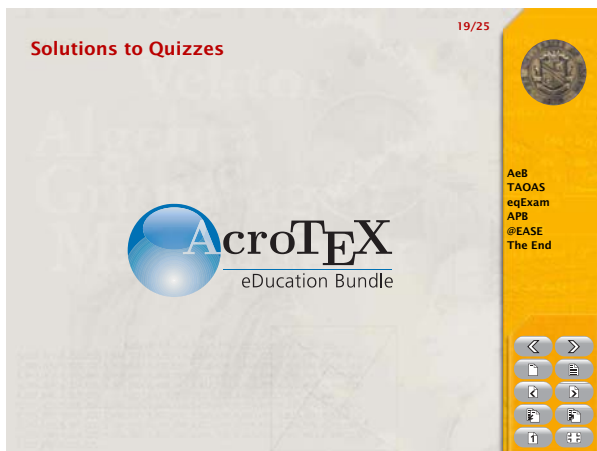
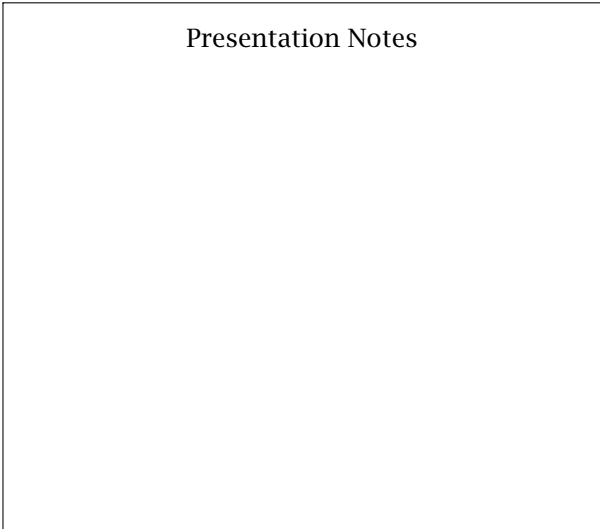
Slide 15

The `jj_game` Package, a Jeopardy-like game
http://www.math.uakron.edu/~dpstory/jj_game.html

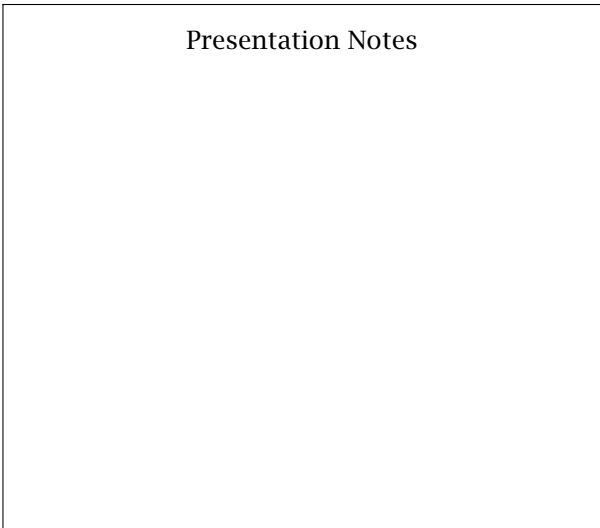
The `eCards` Package, used to create electronic interactive flash cards
<http://www.math.uakron.edu/~dpstory/ecards.html>



Slide 16



Slide 19



References

- ▶ The following are a listing of the web pages associate with AcroT_EX software.
 - [1] AcroT_EX Web Site, D. P. Story, Department of Mathematics and Computer Science, University of Akron, Akron, Ohio <http://www.math.uakron.edu/~dpstory/acrotex.html>
 - [2] AcroT_EX Web Site, Home of the [AcroT_EX Presentation Bundle](#) and future home of @EASE <http://www.acrotex.net>
 - [3] The [AcroT_EX eDucation Bundle](#) (AeB), <http://www.math.uakron.edu/~dpstory/webeq.html>
 - [4] The [The AcroT_EX Online Practice and Assessment Center](#) <http://www.math.uakron.edu/~dpstory/tutorial/online/index.html>
 - [5] *Algebra Review in Ten Lessons*, http://www.math.uakron.edu/~dpstory/mpt_home.html
 - [6] [e-@lculus](#), <http://www.math.uakron.edu/~dpstory/e-calculus.html>
 - [7] [eCards](#) Home Page of the eCards Package, <http://www.math.uakron.edu/~dpstory/ecards.html>
 - [8] [Grade School Sample Files](#), <http://www.math.uakron.edu/~dpstory/gradeschool.html>
 - [9] [JJ_Game](#) Home Page of Jeopardy-like Game, http://www.math.uakron.edu/~dpstory/jj_game.html
 - [10] MacQT_EX Testing System, by Ross Moore, Department of Mathematics, Macquarie University, Sydney, Australia, <http://www.maths.mq.edu.au/cgi-bin/playground/webenv.pl>
 - [11] [PDF Classroom Demonstration](#), http://www.math.uakron.edu/~dpstory/pdf_demos.html
 - [12] [PDF Student Manipulatives](#), http://www.math.uakron.edu/~dpstory/pdf_handson.html
- ▶ Selected Electronic and Paper articles AcroT_EX, L^AT_EX and PDF
 - [13] “Creating Online Tests with eqExam”, by D. P. Story, The PracT_EX Journal, Issue Number 2, 2005, <http://www.tug.org/pracjourn/2005-2/story-eqexam/>
 - [14] “Producing a TeX/LaTeX Online Survey with the eqExam Package”, by D. P. Story, The PracT_EX Journal, Issue Number 2, 2005, <http://www.tug.org/pracjourn/2005-2/story-survey/>
 - [15] “Using L^AT_EX to Create Quality PDF Documents for the WWW”, D. P. Story, Department of Mathematics and Computer Science, University of Akron, Akron, Ohio <http://www.math.uakron.edu/~dpstory/latex2pdf.html>
 - [16] “Online Trigonometry Flashcards”, with Katie Jones and Thomas E. Price, Mathematics in School, Vol. 33, No. 4, pp. 8–12, (Sept. 2004).
- ▶ T_EX Resources on the Web
 - [17] T_EX Users Group, <http://www.tug.org/>
 - [18] The T_EX Catalogue, by Graham Williams <http://www.tex.ac.uk/tex-archive/help/Catalogue/catalogue.html>