**Module 1: Mathlets in Lecture**

Haynes Miller, Professor of Mathematics, MIT
Module Objective:


Lecture Fragment Objectives:

•
•
• mathematics in Mathlet visualizations.
• Support the contention that...
  Mathematics is a highly visual and very intuitive subject.
Mathlet: Linear Phase Portraits Cursor Entry

Discussion Questions

1. The Mathlet, there was a lot of information on the screen. Do you remember how you felt? Were you confused by it? (I ask because your students' experience will be not too different from your own, unless you have seen an applet like this before.)
Discussion Questions

2. I introduced the various windows and functionalities of this Mathlet over a period of several minutes.

Make an ordered list of these, in sequence, and think about other ways I might have presented them to this audience.

3. There are still other aspects of this tool, which I did not talk about at all.

Suggest some additional investigations one can pursue using it.
Design Features of MIT Mathlets

• High degree of interactivity
• Narrow focus
• Multiple linked representation of information
• Click and drag control rather than keyboard
• Uniformity of style and convention

Some Virtues of Mathlets

1. They bring out the intrinsic visual character of mathematics.
2. They mediate between special cases and the general case.
Lecture Fragment Objectives:

The participant will be able to use Mathlets to

• support lecture-based instruction

• increase student participation in the lecture

• give students a visual to correlate symbols and calculations
Practice your use of a Mathlet, before you use it in lecture!

Decide in advance what you want to do!

- Which parts will you call attention to and in what order?

- What sliders will you move, and to what settings?

- How will you mix the Mathlet demonstration with chalk or projector content.
Discussion Questions

1. This was an interactive lecture, with quite a few suggestions and answers from the audience.

   How many students do you think provided feedback?

   Do you think I had any information about how much the others were understanding?

---

2. What further lessons could you draw from this Mathlet in a lecture setting?
Virtues of Mathlets

3. They can be used to break a lecture into bite-sized fragments.
4. Their graphical and artistic quality can excite interest.