

Mathematica Practice

Math 321-A

Friday, September 8, 2006

Plotting Windows for Curves

In general, `AspectRatio` \rightarrow number sets the ratio of y -units to the ratio of x -units. The default is approximately 0.6.

Plot

- `PlotRange` \rightarrow `{{xmin, xmax}, {ymin, ymax}}` or `{ymin, ymax}`

ParametricPlot and PolarPlot

- `PlotRange` \rightarrow `{{xmin, xmax}, {ymin, ymax}}`

Project Introduction

For any work that you want to review later, you should be sure to save onto some storage medium, using `File > Save`.

By default, what you type into *Mathematica* is treated as input, and *Mathematica* returns output.

If you are going to save your work or submit it to someone else, you should annotate it with text. Along with text, it is helpful to have titles, subtitles, and section headings.

All of these are accessible under `Format > Style`.

The resulting notebook can be displayed with different types of style-sheets, which are accessible under `Format > Style Sheet`.

Practice

For the practice exercises below, create a *Mathematica* notebook that includes a title, your name, and a sentence describing what you are doing using the appropriate formatting commands.

- Plot $y = \sin(1/x)$ in the rectangle $-3 \leq x \leq 3$ and $-2 \leq y \leq 2$.
- Plot $x = t^3 - t$ and $y = t^5 - t^3$ for $-10 \leq t \leq 10$ in the rectangle $-3 \leq x \leq 3$ and $-10 \leq y \leq 10$.
- Plot $r = 1/(1 + 0.999 \cos(\theta))$ for $0 \leq \theta \leq 2\pi$ with a region that shows all of the graph clearly. You will need to use the `AspectRatio` to get a good graph in addition to the `PlotRange`.
- Practice saving your work, closing *Mathematica*, and re-opening your file.

Play around with different style-sheets to change the appearance of your work.