

Math 255
Homework Set 2
Winter 2008

Due at the beginning of class, Tuesday, Jan. 22

The assignment consists of the following problems from the text:

- Section 13.1, Pages 833–834: #6, #12, #14, #18, #22, and #40.
- Section 13.2, Pages 841–842: #18, #20, #30, #34, and #44.
- Section 13.3, Pages 848–850: #8, #10, #41, #50, #55, and #56.
- Section 13.4, Pages 856–857, #2, #6, #36, and #42.

The following problems related to Computer Lab I are also part of the assignment:

- Bézier Curves, Page 705. Using Maple, do problems #1 and #4.
- The Nephroid of Freeth and the Ovals of Cassini. These may sound like they refer to something right out of *The Lord of the Rings*, but they are actually the names of two kinds of curves. Use Maple to do problems #69 and #80 on Page 715. For #80, note that with the use of the relation between polar and Cartesian coordinates (and with the help of a double-angle formula for cosine) the equation given can be written in the form $F(x, y; a, c) = 0$. Then you can use the Maple command `implicitplot(F=0, x=xa..xb, y=ya..yb)` together with animations or superimposed plots as in the Computer Lab to understand the way the curves change as a and c vary.