

NAME: _____

AM 033 — Applied Mathematics - I

Brown University
Homework, Set 1

Fall 2003
Due Friday, September 12

This homework asks you to do graphical analysis of ordinary differential equations. You may want to use any available software package to accomplish this goal. Namely, draw direction fields and isoclines for each of the following differential equations.

1.1 $x'(t) = [x(t) + t]/[x(t) - t];$

1.2 $x'(t) = [(1 - t^2)x(t) - 1]/x(t);$

1.3 $x'(t) = \cos(t) - x(t);$

1.4 $x'(t) = x^2(t) - t^2;$

1.5 $y'(x) = (x + y)/(x - y);$

1.6 $y'(x) = ((1 - x^2)y - x)/y.$

Please submit hard copies of your drawings and commands.