

# MATH 226

## Differential Equations

### Assignment 21

Due Monday May 9

Read Section 8.1 “Numerical Approximations: Euler’s Method” and Section 8.2 “Accuracy of Numerical Methods” in Chapter 8: *Numerical Methods*

### Problems

#### 7.3 Bifurcation Exercises

Feedback Problems 7.3: 12, 15, 17

(Read Introductions/Instructions Which Precede Exercises)

**NOTE:** There is a typographical error in the equation for  $y'$  in Problem 12.

It should read  $y' = -4x + y + x^2$ .

Pictures Below: *Direction Fields Near (2,2) for System*

$$\begin{aligned}x' &= x(4 - x - y) \\ y' &= y(2 + 2a - y - ax)\end{aligned}$$



