

229A: Numerical Methods in Linear Algebra

Homework 1: due 1/24/02

Problem 0: Familiarize yourself to the matlab environment using the matlab primers. (Only applicable for the people who do not have much matlab experience.)

Problem 1: Solve Exercise 1.4

Problem 2: Solve Exercise 2.3

Problem 3: Solve Exercise 2.5; Note the typo in (a).

Problem 4: Solve Exercise 3.2

Problem 5: Solve Exercise 4.1

Problem 6: Solve Exercise 4.3; List your matlab program in your hw paper.

Problem 7: Let

$$A = \begin{bmatrix} 1 & 2 \\ 0 & 2 \end{bmatrix}$$

- (a) The unit circle S^1 is mapped to an oriented ellipse by A as shown in Figure 3.1. Determine the equation of this ellipse and compute the major and minor axes, and the orientation angle.
- (b) Compute $\|A\|_2$ (or check $\|A\|_2 \approx 2.9208$).