Linear Algebra (MATH 3333) Spring 2009 Section 2
Homework 11
Due: Wed. Apr. 29, start of class

Instructions: Please read the homework policies and guidelines posted on the course webpage. You may *not* use a calculator (or computer). Make sure to write your name, course and section numbers in the top right corner of your solution set, as well as the assignment number on top. Page/section numbers refer to the course text.

Reading

Sections 7.1 and 7.2

Written Assignment

Total: 100 points

Each problem is worth 10 points unless noted.

Section 7.1 (p. 451): 21, 26

Section 7.2 (p. 461): 6 (20 points — remember to justify your answer — here diagonalizable means over $\mathbb{R}$ or $\mathbb{C}$), 12, 18, 19, 24

Problem A: (20 points) For each of the following matrices, find (i) the characteristic polynomial, (ii) the eigenvalues and (iii) the corresponding eigenspaces. Finally, (iv) if possible find a basis T of $\mathbb{R}^2$ or $\mathbb{R}^3$ such that $[A]_T$ is diagonal and write down $[A]_T$.

(a) A is the matrix from Exercise 8(b) on p. 450.

(b) A is the matrix from Exercise 9(b) on p. 450.