

Linear Algebra (MATH 3333 - 04) Spring 2011

Homework 9

Due: Fri. Apr. 22, 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. Please staple your homework. Sections and exercises refer to the exercises in the required course text.

Reading

Section 3.3, 2.3, 3.4

Conceptual Questions (not to be turned in)

1. What does it mean for a matrix A to be invertible?
2. What does $\det A$ mean?

Written Assignment

Total: 100 points

Each problem is worth 10 points.

Section 2.3: 7

Section 3.2: [compute all determinants using the cofactor definition we gave in class (cf. Sec. 3.3)] 1, 6 10

Section 3.3: 1, 3, 11

Problem A. Let A and B be 2×2 matrices. Show $AB = I$ if and only if $BA = I$.

Problem B. Let A and B be 2×2 matrices. Show $\det(AB) = \det(A)\det(B)$.

Problem C. From the definition (in terms of cofactors), show $\det(A) = \det(A^T)$ if

- (i) A is 2×2
- (ii) A is 3×3 .