Math 22 Lin Alg: Homework 4

due Wed Jul 19   . . . but best if do relevant questions after each lecture

Most of this will be review for Midterm 1 in some shape or form. I recommend you start collecting a list of issues you are stuck on or unsure of, and a list of major theorems and problem-solving techniques .

1.9: (see Goals listed in HW3)

24.

2.1: 11 [For finding the matrix B, think of a variation of what you just did—you don't need the concept of inverse],

12.

2.2: shifting gear: mostly proving things. . .

10,

14,

23,

33 [Only prove that $AB = I$; you don't need to do the other way round. Hint: you can give an explanation in words rather than equations if you want. Explain what happens to give elements a) on the diagonal, b) above the diagonal, and c) below the diagonal].

2.3: Goals: know and be able to apply the Invertible Matrix Theorem.

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12,

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The following will not be tested on Midterm 1, but I wouldn't leave it all to after the exam:

2.5: Goals: Be able to factorize A as LU and use to solve a linear system. Understand why this factorization is useful.

2,

7,

10,

19. [Be sure to explain both parts. This is a really cool property of lower triangular matrices. Bonus: does it hold for upper triangular ones? Why or why not?]

3.1: Goals: Understand the relationship between the determinant and invertibility of a matrix, be able to compute the determinant.

2 [be sure to do it both ways as the text above the question asks],

38 [Hint: try question 37 first].