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/m301.sp06/handouts301/t2_301_317/review_suggestions_2_tex

1 This list is not in final form. Like, stuff may yet be added to it.

2 Test #1 is

Friday
3/17/06.

3 The test will cover the material of Assignments #1 – #21, with emphasis on #14 – #21.

4 In the old-tests collection:

(a) Test #1 is all fair game.

(b) Test #2 parts that are fair game:

- (i) 1(e)
- (ii) 2 (where *range* is what we call *column space*)
- (iii) 3 (although *row space* formally hasn't come up in class, this is fair game)
- (iv) 4
- (v) 6 (part (B) is part of 4.1: 33)

(c) Test-#3 fair-game parts:

- (i) 2 just (a) and (b), not (c). Corrected
- (ii) 3 (¿ $\mathbf{det(\boldsymbol{F}) = 39}$?)
- (iii) 6(B), 6(D), 6(F)

5 Know the basic definitions. Here is a list of the ones I believe to be new since test #1. Approach this in the spirit of Assignment #18: "definition + basic theorem". For many of these, it's helpful to have a list of entities which are examples of the thing being defined, and examples of things that aren't examples of the thing being defined.

(a) definition

(b) theorem

(c) counterexample

(d) matrix inverse

(e) elementary matrix

(f) determinant of a matrix

(g) cofactor

(h) adjugate

(i) Camer's rule

(j) vector space (10 desiderata)

(k) linear transformation (as extended to abstract vector spaces)

(l) subspace of a vector space (3 desiderata)

(m) subspace *spanned* by a set

(n) basis for a space or subspace

(o) null space of a matrix

(p) column space of a matrix

(q)

(r)

6 Computations you need to be able to do:

(a) Evaluate the determinant of a big matrix:

(i) straight from text's first definition
(ii) via cofactor expansion along any row or column
(iii) via EROs

(b) Reduce a matrix to reduced echelon form:

(i) for its own sweet sake
(ii) to solve $\boldsymbol{A}\vec{\boldsymbol{x}} = \vec{\boldsymbol{b}}$ for $\vec{\boldsymbol{x}}$, given $\boldsymbol{A}$ and $\vec{\boldsymbol{b}}$
(iii) to decide invertibility
(iv) to decide span membership
(v) to get a null-space basis
(vi) to get a column-space basis
(vii) to evaluate a determinant

(c)

(d)

7 Theorems. You should know what these theorems say:

(a) Conditions logically equivalent to invertibilty (aka the Big Blue Theorem or the Invertible-Matrix Theorem)