Review sheet for final

The topics here should help you focus your studying for the final. There are ample sources to get practice problems. The assigned homework is a good source for practice, and if you want more practice after these ones, just grabbing problems from the book is a good idea.

## 1. Chapters 1 and 2

Although the final will have a majority of problems from chapter 3, there will be a few from chapter 1 and 2. For topics and practice problems, refer to the review sheet for the midterm. Obvious choices for problems on the final will be questions that a large number of people got wrong on the midterm, or material from the midterm review sheet which did not show up on the midterm.

## 2. section 3.1

Make sure that you can add matricies, and multiply them be a scalar, or use matrix multiplication. Recall that matrix multiplication is not commutative.

Given a pair of vector, you should be able to find the dot product, and you should be able to find the absolute value of a single vector.

You should be able to take the transpose of a matrix.

You should know the properties of matrices in the blue boxes on page 124-125 of the book.

## 3. section 3.2

given a system of equations, you should be able to write it as an augmented matrix.

You should be able to row reduce a matrix (this includes identifying whether a matrix is in RREF form)

You should know the elementary row operations

you should be able to use row reduction to solve a system of equations

## 4. section 3.3

You should be able to find the inverse of a matrix

## 5. section 3.4

Be able to calculate the determinant of a matrix.

If it is a large matrix, look for a lot of zeros and use cofactor expansion

be able to use cramers rule to solve a system of equations

Know how row operations affect determinant

## 6. section 3.5

Know the definition of a vector space.

In particular, know the closure properties.

Know the prominent vector spaces: $\mathbb{R}^n, \mathbb{P}^n, \mathbb{M}_{mn}, \mathcal{C}(I), \mathcal{C}^n(I)$

Given a set of vectors, be able to use closure properties determine if it is a vector space.

Given a vector space, be able to find a subspace

## 7. section 3.6

Be able to find the span of a set of vectors

Be able to identify if a set of vectors spans the vector space

determine if a set of vectors is linearly independent

identify a basis for a vector space

find the dimension of a vector space

Use the wronskian to determine if a set of vectors in a function space is linearly independent.