

Math 340, Jeffrey Adams
Review, Chapters 1-3, October 8, 2010

1. Chapter 1

- (a) Definition of $\mathbb{R}^n$
- (b) Vector operations (addition, scalar multiplication, properties)
- (c) Dot product
- (d) Theorem 4.5, Cauchy-Schwarz inequality, unit vectors, perpendicular vectors
- (e) Projecting on a plane
- (f) Cross product

2. Chapter 3

- (a) Abstract vector spaces (Definition pg. 112)
- (b) Linear functions
- (c) Image and null space of a linear function
- (d) Coordinates, dimension
- (e) Eigenvalues and Eigenvectors

3. Chapter 2

- (a) Systems of linear equations (matrix equations)
- (b) Solving systems by row operations
- (c) Relationship between matrix equations and linear functions
- (d) Solutions to $M\vec{v} = \vec{0}$
- (e) Solutions to $M\vec{v} = \vec{w}$
- (f) Determinant