Math 51, Winter 2013
Henry Adams, February 26

This is a list of some definitions and propositions that I recommend you understand thoroughly for the first and second midterms. Disclaimer: There are important definitions and propositions that are not on this list!

Midterm 1

(1) Page 8 - Definition of a linear combination
(2) Page 9 - Definition of a span
(3) Page 13 - Parametric representation of a plane (and line on page 10)
(4) Page 18 - Proposition 3.1
(5) Page 21 - Definition of dot product
(6) Page 25 - Proposition 4.5
(7) Page 27 - Implicit equation for a plane in $\mathbb{R}^3$
(8) Page 42 - Properties of Reduced Row Echelon Form
(9) Page 45 - How many solutions should my system have?
(10) Page 48 - Equation (7.3) expressing Ax as a linear combination of the columns of A
(11) Page 51 - Definition of $N(A)$
(12) Page 52 - $N(A) = N(\text{rref}(A))$
(13) Page 53 - Proposition 8.2
(14) Page 58 - Definition of $C(A)$
(15) Page 59 - Second definition of $C(A)$
(16) Page 59 - Proposition 9.1
(17) Page 65 - Definition of a linear subspace
(18) Page 69 - Definition of a basis (not in a blue box)
(19) Page 76 - Proposition 12.3
(20) Page 77 - Proposition 12.4

Midterm 2

(1) LA Page 79 - Definition of linear transformation
(2) LA Page 81 - Proposition 13.2
(3) LA Page 91 - Matrix for $\text{Rot}_\theta \colon \mathbb{R}^2 \to \mathbb{R}^2$
(4) LA Page 91 - Matrix for $\text{Proj}_L \colon \mathbb{R}^2 \to \mathbb{R}^2$
(5) LA Page 100 - Proposition 15.3
(6) LA Page 106 - Proposition 16.6
(7) LA Page 107 - Formula $AA^{-1} = A^{-1}A = I$
(8) LA Page 108 - Proposition 16.7
(9) LA Page 110 - Proposition 16.9
(10) LA Page 110 - Formula for the inverse of a 2×2 matrix
(11) LA Page 116 - Proposition 17.2
(12) LA Page 118 - Proposition 17.3
(13) LA Page 118 - Proposition 17.4
(14) LA Page 119 - Formula for $\det(A^{-1})$
(15) LA Page 121 - Proposition 17.6
(16) LA Page 145 - Definition of coordinates of v with respect to basis $\mathcal{B}$ (not in a blue box)
(17) LA Page 148 - Definition of change of basis matrix C (not in a blue box)
(18) LA Page 150 and 151 - $B = C^{-1}AC$ and $A = CBC^{-1}$
(19) LA Page 153 - Formula for B
(20) LA Page 154 - Definition of similar matrices
(21) LA Page 155 - Proposition 21.1
(22) LA Page 173 - Definition of eigenvector and eigenvalue
(23) LA Page 174 - Proposition 23.1

(24) LA Page 175 - Definition of eigenspace
(25) LA Page 176 - Definition of diagonalizable (not in a blue box)
(26) LA Page 177 - Proposition 23.2
(27) LA Page 178 - Proposition 23.3
(28) LA Page 190 - Proposition 25.2 (Spectral Theorem)
(29) LA Page 196 - Definition of quadratic form
(30) LA Page 197 - Definition of different types of definiteness (not in a blue box)
(31) LA Page 200 - Proposition 26.1
(32) DVC Page 7 - Definition of the graph Γ_f
(33) DVC Page 8 - Definition 1.3
(34) DVC Page 37 - Definition 4.3
(35) DVC Page 38 - Definition 4.4
(36) DVC Page 38 - Definition of velocity and acceleration (not in a box)