MA 242 Test 1 Review Sheet

Section 1.1 Cartesian Coordinates:

- Be able to plot various points (x,y,z)
- Know the distance formula and equation of a sphere
- Examples p. 14: 1,3,5,12,18, 21

Section 1.2 Vectors:

- Be able to add vectors both pictorially and component wise
- Given 2 points A and B, find the vector that goes from A to B
- Find the magnitude of a vector, find unit vectors
- Find the resultant force, find tension
- Examples p.34: 1,2, 5,7,11,14. Also look at the examples from class, webassign, and examples 7 & 8 from the textbook

Section 1.3 The Dot Product:

- Know both definitions of the dot product
- Be able to determine if 2 vectors are perpendicular
- Be able to find work
- Be able to find the angle between 2 vectors
- Given the formula, find the orthogonal decomposition of a vector
- Examples p. 54: 4,7,9,11,13,15,17, 19
- 242-040 and 242-050 students also look at problem 20

Section 1.4 The Cross Product:

- Know the definition and that **a**x**b** is orthogonal to both **a** and **b.**
- Be able to determine if 2 vectors are parallel
- Be able to find the area of a parallelogram
- Be able to find the volume of a parallelepiped
- Find the magnitude of torque (see in class example)
- Examples p. 70: 3,7,13,17,19,20,22,23,29
- 242-040 and 242-050 students also look at problems 14 and 24

Section 1.5 Equations of Lines and Planes

- Know both vector and parametric equations of lines
- Be able to determine if two lines are parallel, intersecting, or skew
- Know the scalar equation of the plane
- Look at Lines and Planes and the problems from in class

- Examples p. 96: 2,3,5,6,7, 9,10,11,12, 13,14,15,16,19,23

Section 2.1 The Calculus of Vector Functions

Be able to take limits, derivatives, and integrals of vector functions.
Know when a vector function is continuous

- Examples p 18: 1, 4c,17

Section 2.2 Parametrized Curves in Space

- Find the velocity, speed, and acceleration given a position vector
- Find position, velocity, and speed given acceleration, Projectile Problems

Examples p. 38: 19, 21,22,27, also look over examples from in class, webassign and
examples 8,9, and 10 from the textbook