MA 341 Exam #1 Review
Exam #1 will be in class on Wednesday, February 19

1. Read and review the "Log of Class Activities" from the course website through Wednesday, February 12.

2. Read and review the relevant sections of the "Course Notes" from the course website. You are not responsible for the material that we did not cover.

3. Read and review all of the homework problems, including solutions posted on the course website.

4. In particular be able to do the following, and problems similar to the following. I may directly ask some questions just like these, but I may also ask related questions that are not exactly like these.

   (a) Solve Problems 1.1.3–1.1.8.

   (b) Explain the meaning of the various features of axiomatic systems—consistent, independent, complete, categoric, model.

   (c) Given an axiomatic system (such as axioms for people and committees), be able to determine and justify if the system is consistent or not, if each axiom is independent or not, and if the system is categoric or not.

   (d) Solve Problems 1.2.2–1.2.5.

   (e) Explain the significance of Euclid's *Elements.*

   (f) Prove Theorem 2.1.2 from Axiom 2.1.1 — See the solution to 2.1.3.

   (g) Give the definitions of point and line in the analytic model of plane Euclidean geometry $\mathbf{E}^2$.

   (h) Solve Problem 2.2.1 as applied to models 2.2.1–2.2.12.

   (i) Understand and explain which models in 2.2.1–2.2.12 are isomorphic to each other and how.

   (j) Know what stereographic projection is (see Theorem 2.8.1, but you are not responsible for the proof) and how to use the parametric form of a line to calculate coordinates — see Homework #2.

   (k) Derive the formula in Theorem 2.3.5 — See Problems 2.3.6–2.3.9.

   (l) Be able to use this theorem to find equations of lines given specific points.

(m) Be able to calculate 2×2 and 3×3 determinants.

(n) Solve Problem 2.5.1 and be able to use this formula to find equations of lines given specific points.

(o) Solve Problems 2.6.1–2.6.4 and be able to use this formula to test collinearity of three points.

(p) Solve Problem 2.7.2 (I do not require that you know the proof using matrices) and be able to use this formula to find the point of intersection of two lines.