

MA 614 – Homework 8

Due Friday, Mar 6

This homework is intended to assist you with studying for the midterm exam.

Part I: This part should be handwritten. Create a concept map for the course so far. A *concept map* is a diagram showing the relationships among concepts. Type “concept map” into google and you will get many examples. You might need to tape several sheets of paper together to make everything fit.

1. Your concept map should be hand-drawn.
2. Make sure to label the branches of your concept map so that it is clear how the different nodes of the map are related to each other. Again, the google search should make it clear what you are to do.

Part II: Write a short essay in which you discuss the subject of enumerative combinatorics in a way that reveals how you understand it, from both a “big picture” perspective and in terms of the “devilish” details. You must type your essay in LaTeX. This essay should be 2-3 pages in length when using the amsart documentclass package at 11pt font. (You do not have to use this formatting, you may write the equivalent in a different format).

Here are some prompts that might help get you started – feel free to discuss other matters if they are more relevant.

- What are some of the major goals and themes of enumerative combinatorics?
- What are some of the major objects? How are these related to each other?
- What are some of the major theorems? Why are these important? How are these related to each other?
- What are some of the major techniques used for proofs? Why are these important? Which ones do you find most useful? Are there some that are particularly useful for certain objects but not others?
- What are some of the most enlightening examples in this subject? Why are they enlightening? How do they relate to the major theorems and techniques in the course?
- What are some of the most effective problem solving strategies you have developed for yourself so far?