

Homework in Math 142 Fall 2022

Expectations. To do as well as you are capable of doing in Math 142, you should expect to do

9–11 hours of work each week outside of class.

Problem types. Two types of homework problems will be assigned in Math 142:

1. Calculations, where the answer to the problem is a number, or a graph, or a diagram. In these problems, show all your work, and if you use a new idea or clever method, indicate what kind of method you use. Always make sure to communicate your reasoning clearly.
2. Explanations/proofs, in which you are asked to “Show that...” or “Explain why...” something is true. In these problems, the point is basically to give an explanation in complete sentences.

Some problems may be a combination of these two types. For example, you might be asked to list all graphs of a certain type, and then you might be asked to explain why/show that your list is complete.

You will have several chances to work on, and revise, all homework problems. Specifically, this process has 3 steps: outline, submission, and revision.

1. An outline of each problem set will be due one class before the completed version is due. For example, the completed version of PS01 is due **Mon Aug 29**, so the outline for PS01 is due **Wed Aug 24**.

Each outline should start by **copying every important definition** from the relevant sections of the textbook (e.g., graph, vertex set, isomorphic). Then, for each problem to be turned in:

- (a) **Write down the goal of the question.** If the question is a calculation, write down what kind of object you need for your final answer; if the question is a proof, write down what needs to be proved, in the form of an if-then statement. (Again, if you do the same kind of calculation several times, you just need to describe the goal once.)
- (b) **Write down at least one possible approach to the problem.** For a calculation, this could be something like “Imitate example 2” or “Apply the Addition Principle.” For a proof, you should note some definitions or theorems that might be relevant, e.g., “Use the Binomial Theorem.” Your approach need not be correct for you to get full credit for your outline; you just need to show that you have an idea of where to start the problem.

I’ll try to mark up your outlines and get them back to you relatively quickly, so you can use the feedback I give you when you’re finishing the problem set.

2. Submit the completed version. There is no need to include your outline with the completed version.

3. After you get the graded problem set back, you have as many chances as you want to revise the problems as much as you like, at least until the next in-class exam. (The time limit is imposed to keep things a little more manageable.) You do not need to revise/rewrite questions that you have previously gotten correct; just correct the ones you got wrong.