

Guidelines for Homework Solutions – MA197X

Important: Please read these guidelines carefully. Assignments not meeting the guidelines will receive a grade of zero. Re-submission of properly repaired assignments will be entertained only on a limited basis.

Rules:

1. Each problem will be submitted on its own separate sheet of paper. The student must write only on one side of the sheet of paper.
 - For proofs that require more than one page, several sheets should be stapled together with the student's name at the top of every page.
 - The student is welcome to use recycled paper such as that available for free next to the printer in the MAPLE Lab, SH306. If typeset text appears on the opposite side of the page, it should not interfere with the readability of the proof.
2. Problems will be graded on a scale of 0 to 5, with 0 being a very common grade early in the course and for students who repeatedly ignore instructions.
3. Be sure to write legibly, without crowding text on the page. Be sure to include your name and the date. Paper should be clean and neat with any spiral notebook "fringies" cleanly removed.
4. Students are expected to solve homework problems independently. You are free to talk with classmates about in-class worksheets or problems in the text and you are free to talk to me about any of the math problems given, during office hours.
5. When we write, we should have a target audience in mind. For your proofs, the target audience is a weaker student in the same class. Assume that the reader knows all of the basics that we have learned in the course, but simply cannot solve this particular problem.
6. The format of a proper solution shall be:
 - A proper re-statement of the problem, in English.
 - A section labelled "Recall", if needed. This section repeats, briefly but precisely, any theorems or definitions to be used in your proof, except for those that have been regularly used in recent class discussions.
 - A proper proof, in English. This begins with the word "**Proof:**" followed by a notation giving the proof technique whenever it is not direct.

- After the proof, give any corollaries or observations that are relevant to the problem as stated.

7. While we use logical shorthand in class, such as

$$\forall A, B, C [(A \subseteq (B \cup C)) \rightarrow ((A \subseteq B) \vee (A \subseteq C))],$$

in order to save time in our discussions, we do not allow such notation typically in our written proofs. For instance, the symbols \forall , \exists , \rightarrow and so on should not appear in proofs, except when recalling a definition or restating the goal of the proof.

Our goal is not just to know facts about mathematics, but to be able to synthesize facts to create new knowledge, and to be able to communicate this knowledge to non-experts. The successful college graduate must be able to communicate in English, but also to explain difficult concepts and break complex tasks up into digestible pieces. Developing the skill of careful and lucid proofwriting can have an immense positive effect on these fundamental goals.