

# Academic integrity

(A guide to working together and acknowledging sources.)

Several of you have asked me some good questions about writing up the HW and what to do about acknowledging sources. This is a serious issue in academic work and each field (english, physics, mathematics, etc) has its own standards about what is acceptable and what is not. I'll repeat two questions I've heard from you and answer them. Keep in mind I'm giving some guidelines for Math 25, other classes may expect different things from you.

1. *How much can we assume and how much do we need to prove?*
2. *After getting stuck on a problem what if I look in textbooks and on the web and find a solution or some helpful ideas. Is this plagiarism?*

The first and second question are related, but let me say something about the first question first. When writing a proof, you want to be clear about why things are true and what you are using. So you can use anything that we prove in class or that is in the textbook in the reading. (After all, we don't cover every line of every proof in class.) Once we have proved results in the HW you can use them in future HW assignments. However, you must clearly state the result(s) you are using. Of course, you must understand the result(s) you use and be able to (re)prove them if asked. So for example, after the first week you know you can use Schroeder-Bernstein Theorem in any future counting arguments. For example: if you construct two injections  $f : X \rightarrow Y$  and  $g : Y \rightarrow X$ , then you might say something like "by the Schroeder-Bernstein Theorem we know here is a bijection between  $X$  and  $Y$ , hence they have the same cardinality".

If in doubt - just ask!

Now, about the second question. The following things are perfectly acceptable:

1. working on problems with other people — in fact this is an excellent idea!
2. finding useful results in textbooks,
3. finding useful results on the web,
4. getting other people to read your HW solutions and check your arguments. (This again is an excellent idea - I do this myself.)

However, you *must*

- Write up the solutions by yourself. It is unacceptable to create a “communal” solution which you then copy onto your HW.
- Acknowledge your sources. For example:
  - a) if you worked on a problem with a group of people and got some useful ideas from them, you must indicate this. (You must be the judge of what is appropriate here. If you had a conversation that did not make any progress on a problem, then later on solved it on your own, you probably don’t need to say anything. However, if you learnt a significant idea from someone or someone pointed out that your current solution is incorrect, then you should indicate this.)
  - b) anything you find from the web or from a book in the library *must* be acknowledged.
- You do not need to acknowledge anything from the textbooks for the course or from conversations with me. (This is of course subject to my comments about question 1, which is really asking you to be clear about your reasoning or the details about why something is true when writing up a proof.)

One last word of advice. The point of the HW is to get you to think about the material from class and to come to terms with the ideas we are discussing. In some sense it is the heart and soul of the course. Think carefully about just looking up solutions so that you can finish a problem set — in the end how much will this approach really help you to understand what is going on?

I hope these guidelines are helpful. If you are confused about any of these issues, please either email me or ask me in person.