

Expectations and Advice for Homework

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1. The purpose of doing math exercises is to build *understanding*, not find a correct answer.
2. Problem write-ups are your permanent record of your understanding of the material covered. This is especially true in a course such as this that has no exams. Thus, you'll want to make your solutions complete enough so that you can understand them a month or a few years after you wrote them.
3. Solutions should be clearly and logically presented. This means that:
 - (a) Your method should always be clear. It should be easy to figure out what you're doing and why.
 - (b) Use a lot of space. I recommend skipping some lines if you use lined paper.
 - (c) Equations should almost always be accompanied by prose. Before plunging into algebra, state what it is you're solving for. If there are any non-obvious steps in a calculation, explain them. Write equations in a logical order.
4. You should aim to develop some sort of semi-structured style for solving problems. Different people have different styles. But good, experienced problem-solvers all have some sort of system that they use.
5. Solutions must stand on their own; they should be understandable to someone who hasn't read the problem. This means that you should paraphrase the question before writing your response.
6. I will not give numerical or even letter grades on HW assignments. Instead, for each problem I'll assign one or two marks: Success! or Not Yet. A Not Yet mark means that you haven't quite demonstrated mastery/understanding of the learning goals for that exercise. You can resubmit any "Not Yet" assignments without penalty. I will also include as many comments as I can. Note that these are often comments on the pdf that you upload, which might not be immediately visible on google classroom.

Further Thoughts

1. It is important that you develop a style or system for solving problems and doing math. Individual styles will vary, though.
2. You want to hone your style and techniques on moderately difficult not-quite-easy problems. This way when you encounter fiercely difficult problems, you'll have a solid technique to help you.
3. For difficult or multi-step problems, as opposed to the short practice/calisthenics sorts of problems, you should usually think about two phases to problem solving.
 - (a) Figuring it out. This is where you follow dead ends, make mistakes, do calculations, and struggle until you get it.
 - (b) Writing it up. In this phase you consolidate your work, write it up clearly and explain your methods. You might mention some dead ends or a mistake you made while doing the problem, but usually you want to present an orderly path to the solution.
4. The writing-it-up phase does add a bit of time to the assignment, but I am convinced it is worth it. It is often the difference between doing well and doing great—not necessarily in terms of your grade, but definitely in terms of the lasting value of the assignment.
5. When collaborating with others, I strongly recommend doing the writing-it-up phase on your own. This is a way to make sure that you really understand what you and your colleagues have just figured out.