MATH 270 – Section 005: Calculus I
Spring 2024
HOW TO WRITE UP HOMEWORKS SOLUTIONS
Prof Arturo Magidin

Learning mathematics requires you to do mathematics, which is the point of homework. The main source of feedback that you get is through your homework; it is also my main source of feedback on how you are doing.

The following are instructions and some suggestions for submitting your homework in my course.

Instructions

- Your homework should be written in standard size paper.

- In the upper right hand corner of the first page you must write your name (first and last), and the course number.

- Homework with multiple pages should be stapled on the upper left-hand corner; I will bring a stapler with me to class the days homework is due so you can staple it before turning it in, if necessary.

- Problems should be clearly labeled and numbered on the left side of the page.

- Problems should be written in the order in which they are assigned; in other words, problems in the first section due should always appear before problems in the second, and so on. And problem 3 of a section should always appear before problem 5, etc.

- Please use a single column for your solutions. Filling the page makes it difficult for me to write comments, and forces me to go searching for your solutions (which makes it harder for me to grade).

- If you use your calculator to graph something, you must indicate you did so, and you must explicitly write the function you graphed (if it was not given), and the viewing window you used. That way, I can reproduce your actions and check your work.

- Do not use material from sections that are later in the book to solve assigned problems, even if you learned it elsewhere or if we already covered it in class.

- **JUSTIFY YOUR ANSWERS.** You will notice that many of the problems I assign are odd-numbered problems; you will also, no doubt, be aware that the book provides answers, but not worked-out solutions, to the odd-numbered problems.

  The reason I assign many odd numbered problems is that this allows you to check your final answer against the one in the book. Unfortunately, this also invites some people who do not know how to solve a problem to simply copy out the final answer to their solutions.

  That is why I **give no credit** for answers that are not justified by work leading to the solution. If you are asked to match a function with a graph, you need to write down

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the rationale you used to determine which graph it is; if you are asked to compute a value, you must show your calculations leading to the final answer. *Only on the rarest of occassions, with the most simple problems, will I allow a solution with no justification.*

Rule of thumb: *If you had to stop and think about it, you need to stop and write it down.*

Suggestions

- It is good practice to first work out the solutions to a homework problem on scratch paper, and then to write up your solutions (with the correct work leading up to it) on the papers you will turn in. This will help you turn in a clean finished product which will make both grading and reviewing it easier.

- When graphing, always include a scale on each axis; this is accomplished by marking some point other than the origin on each axis, and indicating its value, like so:
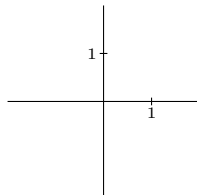
  You can use units other than 1, but you should try, whenever possible, to use the same scale on both axes; otherwise, you have a distorted picture.

- **Never replace a fraction with a decimal approximation.** In other words, you should use $\frac{1}{3}$, and not .33 (though it is okay to use 0.5 instead of $\frac{1}{2}$, since these two are *exactly equal*).

- **Avoid using decimal approximations, at least until the end of the problem.** Every time you use a decimal approximation, you introduce errors. If you do computation with an approximation, your answer is then even farther from the actual answer, and so on. In addition, often you will find that complicated expressions may cancel out and lead to nice expressions. So keep expressions like $\sqrt{2}$, $\ln(2)$, and so on, indicated throughout your work. Only at the very end of the problem might you try to replace it with a decimal approximation.

- **If you are instructed to use approximations, do not use the = sign.** The sign = means *"is exactly equal to."* If you are using an approximation, then the correct symbol to use is $\approx$, which means *"is approximately equal to."* **Conversely, if you are replacing a number with something that is exactly equal to it, then you should use = and not $\approx$.** So if you replace $\frac{1}{8}$ with 0.125, then you should use =.

- If a question directs you to *"give an exact answer,"* that means an **exact answer.** It means leaving fractions, radicals, and complicated expressions indicated. It does **not** mean *"copy all the numbers that appear in my calculator."* Except for very special cases, your calculator is giving you a decimal approximation. So you would leave expressions like $\frac{\sqrt{2}}{2}$ just like that.