

GENERAL ADVICE ON HOW TO WRITE IN EXAMS

You learn the subject by solving problems. But we'd like you to do more than getting the correct answer to a problem. We want you to learn to write mathematics clearly. Remember that you are writing mathematics in English, and your purpose should be presenting a readable (not just legible) document. Therefore, your mathematical writing should be more than a sequence of calculations, it should consist of complete sentences, in which mathematical expressions are embedded. (A good way to test whether you have produced a readable document is to try to read it aloud without adding words that are not on the page. If it says what you want to say, you're ok.)

In grading the exams in the past, we have thought that students need to understand better what we expect of them. Below are some notes that could be useful for students.

In an exam question, we do not give you a selection of five possible answers and ask you to find the correct answer. We give you a problem, and we ask you to provide a *solution*. Some problems are explicitly "show-that" problems: they ask for an argument, an explanation, a proof. Some problems may simply ask for a computation. But even such problems should be understood as "show-that" problems. We do not want to see an answer alone; we want to see the steps of the computation that lead to the answer. If correctly written, these steps constitute a proof that the answer is correct.

Correct answers without enough justification may receive no credit. Correct answers with incorrect justification are only *accidentally* correct; they may receive no credit.

Incorrect answers given with some correct justification may receive some partial credit.

In a long problem, if you make a mistake at some point, you may receive some partial credit, only if your earlier steps are correct and written in a logical order. Therefore you should be especially careful in the early steps of a problem.

Always check your work, if you have time. Some answers are easy to check. For example, to check the proposed solution to an equation, just substitute into the equation. To check an indefinite integral, just differentiate. In the grading of problems whose answers are easily checked, possibly no partial credit will be given.

Write your solutions in the conventional fashion: **left to right, top to bottom**. Otherwise, the reader cannot tell how to read what you have written, and you may lose credit. Remember, we graders do not have the benefit of watching you write (or of having you stand by to explain what you have written); all we have is the finished product of you writing, and this is what you are graded on.

We graders are not mind-readers. It is not our job to **figure out** what you might mean; it is your job to **say** what you mean, in the manner of expression established in lectures and textbooks.

It is possible to write down **too much** justification for your answers. How much is enough, and how much is too much? There is no clear answer; you just have to develop a feeling by reading books and observing and questioning instructors.

If your solution contains irrelevant information, then the grader may conclude that you do not understand the problem fully, and you may lose credit.

Write your symbols clearly. A "3" should not look like a "7"; a "t" should not look like a "+".

Use mathematical symbols correctly. For example, the double-shafted arrow " \Rightarrow " is a logical symbol meaning "implies", so that " $A \Rightarrow B$ " means "A implies B", that is, "If A, then B," that is, "A is false, or B is true." Do **not** use this arrow to mean "therefore" or "now read the following".