

A Grading Guide

The grades in you earn in your math class will reflect not only mathematical correctness, but also your ability to communicate mathematical ideas clearly and effectively. Below are the elements I look for in each mathematical assignment.

□ **Mathematical Correctness.** A mathematically correct assignment has mathematically correct reasoning. A “right” answer derived from erroneous methods is considered completely incorrect, while a “wrong” final answer derived from mostly valid reasoning is more correct. (Of course, it would be best to have both correct reasoning and a correct “final answer”.) When evaluating an assignment for mathematical correctness, I look carefully at the written explanations. The methods used must be suitable, appropriate, and executed without errors. The ideas and relationships expressed in the writing should be relevant and sound.

Some types of problems or assignments may have many possible answers or solutions (especially essay assignments). However, the facts and the reasoning used to arrive at the conclusion (whatever that conclusion may be) are still required to be valid and appropriate.

□ **Writing and Clarity.** When I evaluate an assignment’s writing and clarity, I examine the quality of the presentation. Ideas should be clearly expressed. The reasoning used to arrive at a conclusion needs to be apparent. Rules of proper grammar and English usage must be observed. A good paper should stress the key ideas and avoid long, rambling, and unfocused detours which detract from what’s really important. Equations and graphs should be incorporated within the writing according to established conventions. Citations and supporting material should be included where appropriate. (For assistance with mathematical writing, consult *A Guide to Writing Mathematics*.)

□ **Persuasiveness.** Good mathematical writing should be able to persuade a skeptical reader. Using several methods and approaches to arrive at a solution can be more convincing than using just one technique. A good assignment should address obvious gaps or objections that may come up for the reader. Any real-world implications should be fully explored.

□ **Originality and Creativity.** Good mathematics should be surprising. Papers with interesting, non-standard (and valid) approaches to mathematical problems may receive higher grades than other papers using only conventional methods.

All assignments are graded on a five-point scale. The score which an assignment earns is determined from all of the above criteria. Prominent lapses in meeting one of the criteria

may result in a lower score. For instance, an excessively sloppy paper containing many grammatical errors and spelling mistakes may receive a reduced grade. Below is a description of what each score means.

0	The only way to receive a mark of 0 on an assignment is to not turn it in. Unexcused late assignments are considered to be not turned in, and thus also receive a 0 mark.
1	An assignment receives a score of 1 if it fails to meet any of the listed criteria. An assignment which is mathematically incorrect and fails to clearly communicate any ideas will receive a 1. 1 is the maximum score which a hand-written assignment can receive. <i>All assignments are required to be typed.</i> 1 is also the maximum score that an assignment with a “correct” final answer but no explanation can receive. Mathematics is about ideas; a paper with only equations and no explanation contains no ideas and hence no mathematics.
2	An assignment or paper with several major flaws will receive a score of 2. For example, an assignment which has parts of a correct argument but contains errors on some crucial steps and which also fails to communicate the key ideas will receive a score of 2.
3	Assignments containing one major flaw (or a large number of minor flaws) will receive a score of 3. For example, a paper which is completely mathematically correct but which contains unclear and unfocused writing will receive a score of 3. A clearly-explained paper which contains one critical mistake, but which is otherwise correct, will also receive a score of 3.
4	A paper which meets all of the listed criteria will receive a score of 4. An assignment which receives a 4 may contain a few relatively minor mistakes. But for a paper to receive a mark of 4, it must be clear, it must communicate and explain the main ideas, and the mathematical reasoning contained within must be completely correct.
5	The score of 5 is reserved for <i>exceptional</i> papers and assignments. For an assignment to receive a score of 5, <i>it must go beyond the assignment’s requirements</i> . A paper which uses a uniquely novel or original method can receive a 5. A paper with a particularly elegant explanation or which explores ideas beyond what was required can also receive a 5.

For each homework assignment, think about all of the criteria outlined above. Don’t expect to be able to just turn in a first draft. Expect to do *at least* one rewrite for every assignment. Mathematical explanations and mathematical writing are not easy. However, with work and effort, you will improve your skills and succeed.