

Writing exercise

Goals The main goal for this writing exercise is to give you practice and feedback on writing in mathematics in preparation for the more substantial writing you will do on two projects later in the course. This writing exercise will focus on a straightforward problem whereas the projects will be more involved. Broads goals for the writing exercise and projects in this course are to

- provide practice communicating technical material in written form;
- challenge you with more difficult problems that may be open ended with a variety of reasonable approaches; and
- provide experience in mastering material independently.

The writing project focuses on the first of these goals. Emphasis on the other two will be included in the projects.

Requirements For each of the writing exercise and projects, you will write a carefully prepared paper using the conventional style and standards for writing in mathematics. Your paper should include a statement of the problem itself so the work is self-contained. You can think about this as if you were writing a textbook example.

Write using the style and tips given on the handout “Some notes on writing in mathematics”. When appropriate, you should include carefully drawn figures and plots. Since typesetting mathematics is difficult, you can write reports neatly by hand. Another option is to use a word processor and then write mathematical expressions in by hand. You can also use an “equation editor” if one is available in your word processor. For example, in many versions of *Word*, you can go to the Insert menu and select Equation. Using a word processor gives you the advantage of more easily revising but typesetting mathematical expressions is slow.

For your writing, you should consider the audience to be peers in a multivariate calculus course who have not looked at the particular problem at hand. You should include enough detail so that a reader in this audience can follow your reasoning and reconstruct your work. Your report should be self-contained and not assume that the reader has separately read the problem statement. In your writing, focus on being precise, concise, and clear.

This initial writing exercise is due on Friday, September 30.

Writing exercise problem For a triangle, consider three vectors, one from each of the vertices to the opposite midpoint. Show that the sum of these three vectors is zero. Aim for a vector approach that does not use components.