Math 512B. Activity Structure Guidelines

Your math activities portfolio must be typewritten (in LaTeX if possible). The activities must be around topics in Calculus or Analysis. Some general ideas about the design of eachactivity, subject to change and amplification, as follows.

Each of the math activities in your portfolio should adhere to some general structure as described below. Most likely, this general structure will be amended and improved as we progress in this course, as you learn from your work (both in class and on the activity itself), as you learn by discussing your own material with your colleagues here and elsewhere, and as you learn by actually testing your material in your high school classes, in case you are in the position to do so.

You activity should be aimed to HS students in grades 10 to 12. They should be designed to be completed in no more than 1 hour time; you should give an estimate of the time commitment required.

Besides a title, each activity should have an abstract or summary, a list of objectives, and a description of material required (e.g. TI-84).

There should be also a section containing notes to the instructor managing the activity in class: prerequisites; what students should know prior to the activity; common students errors, misconceptions, and difficulties.

The main part of the activity packet is of course the problem or problems (in the form of a class handout for the students) which the students will explore and solve (e.g. $\sqrt{2}$ is irrational), and it should be itemized in steps each of which is manageable by the students. Solutions to those steps must be provided (sometimes there will be more than one solution possible).

Besides solution to the questions in the student handout, there should also be a scheme for grading it: you would like to grade on several (mathematical) levels: modeling, formulating, transforming, manipulating, inferring, communicating, and so on.

Of course, you would like to complete your activity packet with a historical placement of the problem as well as a textbook placement if it applies; you would also want to have possible extensions and modifications to the activity; and you would like to have a list of references (book or on line) with appropriate comments.

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