MAT 370 Proof Portfolio
Spring 2021

Description

This project will be an opportunity to keep track of your progress and demonstrate your growth in writing proofs about algebraic structures and mastery of the course material. Your final portfolio will consist of six typed proofs that you feel are representative of the concepts that you have learned throughout the semester. Periodically, you will submit your progress on the portfolio so that I may be able to provide feedback and your can perfect and polish your proofs.

As this project is intended to be a personal reflection of what you have learned this semester, your portfolio must be entirely your own work. You must cite any and all sources that you use, and you should not plagiarize.

Due Dates

Date	Portfolio Progress
Monday, March 15th	Rough draft of two proofs and reflections due
Monday April 12th	Rough draft of additional two proofs and reflections (four total) due
Monday May 10th	Final Portfolio Draft Due — All six proofs and reflections

Logistics

The project will consist of two portions: six mathematical proofs and reflection on each proof.

Proofs: You will select six proofs that satisfy the following criteria:

- Select the proofs from your submitted homework problems, completed exams, or choose from exercises in the guided notes. **The proof you submit must be entirely your own work — do not lift example proofs from the textbook, class notes or answers I have provided to practice problems.** Even if you received full credit for the proof before, there is likely still room for improvement. You may need to correct typos or streamline your proof or provide clarification or additional explanation.
- Your proofs must be typed and use appropriate mathematical notation.
- Each of the following concepts must be present in at least one proof. Indicate in your reflection which concept the proof represents
    1. Proof that a relation is an equivalence relation
    2. Proof that a function is an isomorphism
    3. Proof that a set is a group
    4. A proof about subgroups
    5. A proof about permutation groups
    6. A proof about cyclic groups

Reflections: For each proof that you submit you will also submit a one-page (double-spaced, normal margins) reflection on the writing process. It should be a short essay and address (at minimum) the following prompts:

- Why did you choose to include this proof? What proof technique or concepts from the semester are being used?
- What was your process in approaching this proof? Were there any parts of the proof that you struggled with? If you previously submitted this proof for homework, how have you improved your proof for this project?
- List any and all sources you used when writing the proof. This includes the textbook, your notes, any other written or online sources, and speaking to your classmates or the instructor.

Rough Draft Submission

Twice during the semester, you will submit rough drafts of your progress. I will look over your proofs and reflections and give you feedback to incorporate on your final submission. These submissions will be graded for completion.

Format

Each proof and its corresponding reflection must be typed on a word processor capable of producing the appropriate mathematical symbols and equations. LaTeX and Microsoft word are two such processors. LaTeX is the editor more commonly used by mathematicians. I have provided instructions on blackboard for getting started in LaTeX and would be happy to help out if you need assistance. Google (or any other search engine) is also a great resource for typesetting mathematics.

Submission

Save your file in the form of a .PDF document. Under the “Portfolio” tab on Blackboard there will be areas to submit your rough drafts and final project.

Evaluation

Each rough draft proof submission will be worth 10 points (graded on completion) for a total of 20 points.

The final submission will be graded out of 80 points. The grading will break down as follows:

Proofs: Each proof will be evaluated out of 9 points according to the following rubric:

Points	Criteria
9	The proof is accurate and well-written. There are no writing or formatting errors.
8	The proof is correct, but there are minor writing or formatting errors
5	The proof is essentially correct, but there are writing or formatting errors that affect comprehension of the solution
2	Progress has been made in writing a proof, however it is not complete or contains significant errors, or the proof is not representative of the course in length or content.
0	Little or no progress has been made towards a proof or proof is plagiarized.

Reflections: Each reflection will be evaluated out of 3 points according to the following rubric:

Points	Criteria
3	The reflection addresses all prompts and is well-written. There are no writing or formatting errors.
2	The reflection addresses all prompts, but there are some writing errors.
1	The reflection does not address all prompts, is poorly written, or does not meet the one-page minimum requirement
0	The reflection is largely incomplete or not submitted.

The remaining 8 points will be awarded if the portfolio satisfies the criteria stated above (the 6 types of proofs are represented, the file is typed and in the form of a .PDF).

Portfolios submitted after the deadline will receive a 25% reduction of the grade for each day that it is late.