Exam Revision 3

<u>Due:</u>
Friday, April 26, 11:00 AM

<u>Purpose:</u>
The purpose of this assignment is help you practice the following skills that will contribute to your success as a mathematics student and in your future professional life.
- **Evaluation.** By revisiting a problem that didn't go exactly right, you will practice judging whether certain steps are justified as you evaluate your own work. Most of the time in life (including math), you won't have an expert standing over your shoulder to point out mistakes or validate correct statements. In this assignment you will practice approaching mathematical claims with skepticism and "fact-checking" solutions that might seem right at first glance. This applies to checking your own work in the future and to evaluating the work of others.
- **Adaptation.** Good mathematicians and good professionals are constantly adjusting their strategies and goals as they acquire new knowledge and experiences. When done repeatedly, this can often be carried out naturally and unconsciously. However, in order to build good habits, it is useful to give yourself a more formal structure for improvement. During this assignment, I will ask you to set goals for the next exam that are actionable, measurable, and realistic. (More details on how to do that later.)
- **Communication.** You will be asked in this assignment both to communicate about technical material and about your own thought process. Even if you have immense amounts of knowledge, that information's usefulness will be incredibly limited if you can't communicate it to other people.

In addition, you will continue to practice the mathematical content that appeared on the exam.

<u>Task:</u>
You should revise EVERY problem on the exam.
- If you did not get full credit on the problem, you should:
    1. Provide a clear, correct solution to the problem. Include a list of people and resources you used to get the correct solution.
    2. Explain what you think your main error was and what kind of error it was. (Was it carelessness? Lack of familiarity with the content? A misunderstanding that you have now corrected? Etc.)
    3. Set a goal to help you avoid similar mistakes in the future. (See the section on goal setting below.)
- If you got full credit on the problem, you should:
    1. Provide a clear, correct solution to the problem with greater explanation and polish than you had time to give on the exam.
    2. Give a "moral of the story" for the problem as if you were explaining what you did to a peer. (For example: What was the general strategy you used? How did you recognize what type of problem it was? How did you avoid a potential error? What technique/pro tip should others put in their toolbox?)
    3. Set a goal for further improvement for the next exam.

<u>Criteria for Success:</u>

An assignment that receives full credit will contain clear, complete and correct solutions with the discussion outlined above and will contain actionable, measurable, and realistic goals.

A goal is actionable if there are specific steps you can take towards your goal, measurable if it is clear by the next exam whether you have achieved your goal, and realistic if it pushes you but remains attainable. For example, let's say you struggled on the exam with problems that required using algebraic simplifications.

Some goals that don't fit the criteria:

- "Next time, I will know all the algebraic simplifications." (Not actionable.)
- "I will study more before the next exam." (Not measurable.)
- "Before the next exam, I will watch all the algebra videos." (Actionable and measurable, but not realistic!)

Some goals that do fit the criteria:

- "I will make algebraic simplification flashcards and review them twice a week."
- "I will ask someone who works at the M how they remember algebraic simplifications and implement that strategy."
- "Before the next exam, I will make up and memorize a algebraic simplification song."

If you really don't know where to start, your goal can be "I will come to my instructor's office hours this week to set a goal together".

The assignment will be graded according to the following rubric:

Completion (4 points)	**4 points** All three tasks are completed for all three exam problems.	**2 points** Three exam problems are included, but some are missing a task.	**1 point** Fewer than three problems are included and they're missing tasks.	**0 points** A blank sheet of paper.
Solution (2 points per problem)		**2 points** The solution is complete, clear, and correct.	**1 point** A substantial error remains, or the writing is difficult to follow.	**0 points** The solution is not written up.
Explanation (3 points per problem)	**3 points** A meaningful mistake or moral is clearly identified.	**2 points** A mistake or moral is identified, but not clearly explained.	**1 point** Some reference to an error or moral is included.	**0 points** An explanation is not included.
Goal (2 points per problem)		**2 points** A realistic, actionable, and measurable goal is set.	**1 point** Some goal is set.	**0 points** A goal is not included.