

Guide to Write-ups and Reflections for Free-Think Fridays

Critical thinking problems are an important part of being a well-rounded mathematical learner. They are intended to give you experience in carrying out extended investigations of complex problems, and often will not relate to other in-class activities. As you will discover, these problems take much more time than most of the other types of problems we do (such as those from class).

The critical thinking problems also give you the chance to write about the mathematics that you are doing, so others can experience and hear about it. You will be expected to fully and completely explain your thinking about the problem and communicate this explanation in a way that can be understood by your teacher and peers, as well as other readers.

The Write-ups and reflections for Free-Think Friday follow the following outline:

1. Problem Statement
2. Process Description
3. Solution
4. Self-assessment and reflection: mathematical practices and expectations

Expectations for each of these sections are provided below.

1. Problem Statement

State the problem clearly *in your own words*. Your problem statement should be clear enough that someone unfamiliar with the problem could understand what you are being asked to do. If the problem handout used diagrams, you have the choice of recreating the diagrams or describing the diagrams in words. If you create diagrams, make sure they are clear and that they appear properly on your DP. (You may not just post the exact question as it exists).

2. Process Description

Describe what you did in attempting to solve the problem. Feel free to use your notes as a reminder. Be sure to include EVERYTHING you tried, even things that didn't work or seemed like a waste of time. You must do this part of the write-up even if you didn't solve the problem.

*If you received assistance, tell what the assistance was and how it helped.

This is also the place to describe your group dynamics and how you worked together to discuss the progress on the problem. Detail how everyone contributed to the problem.

3. Solution

State your solution as clearly as you possibly can. Explain how you know your solution is correct and complete. If you only obtained a partial solution, GIVE THAT! If you were able to generalize the problem or work through the challenge sections, be sure to include that. Be sure to write your explanations in a way that will be convincing to someone else--even someone that initially disagrees with your answer.

4. Self-Assessment and Reflection

Tell what you learned from this problem. Be as specific as you can. Assign yourself a grade (out of ten) for this problem and explain why you think you deserve that grade. This is a section to convince me of your progress and work throughout Free-Think Friday.

In addition to reflecting on what you learned and the type of grade you think you deserve, choose *at least one* Mathematical Practice and Expectation (on the syllabus – which can be found on my DP) and write about how this problem relates to that Mathematical Expectation. You may reflect back and write about how you used that “Practice or Expectation” in solving the problem or you may reflect forward and apply that “Practice or Expectation” to the problem and explain its significance, for example.

Grading:

Your grade for the critical-thinking problem will be based on your self-assessment and how well the write-up posted to your DP exemplifies beautiful work. To receive full credit, your write-up must:

1. Be its own page, which is a subpage of your Free-Think Friday page.
2. Explicitly use the section headings, as described above.
3. Include responses to all prompts, as outlined above.
4. Be clear and understandable.
5. Be thorough and display work throughout the process of solving the problem.
6. Use proper English grammar.