

Math 295 - Fall 2020  
Metacognition assignment prompt

Every week this semester, you will be asked to submit a metacognition essay to help you reflect on your learning. Your essay should be at least one page, double spaced, in 12pt font (or a half page single spaced). If you do your work in Word, please convert to pdf before submission so Gradescope is happy.

For each essay, answer **one** of the following questions. You may answer a question more than once in the semester, but your answer should be substantially different than the last time you answered it. During Redo Weeks and the Final Week, replace “this week” in each question with “so far in this class” or “in this class.”

1. What is one homework, warm up, or in-class question you worked on this week that you struggled to understand and solve? Explain how the struggle itself was valuable. In the context of this question, describe the struggle and how you overcame the struggle. You might also discuss whether struggling built aspects of character in you (e.g. endurance, self-confidence, competence to solve new problems) and how these virtues might benefit you in later ventures.
2. What mathematical ideas are you curious to know more about as a result of the material you have learned this week? Give one example of a question about the material that you'd like to explore further, and describe why this is an interesting question to you.
3. How has your mathematical imagination been enhanced as a result of learning this week's material? Give at least three examples.
4. Consider one mathematical idea from this week's material that you have found beautiful, and explain why it is beautiful to you. Your answer should: (1) explain the idea in a way that could be understood by a classmate who has not yet taken this class and (2) address how this beauty is similar to or different from other kinds of beauty that human beings encounter.
5. Give one example of a mathematical idea from this week's material that you found creative, and explain what you find creative about it. For example, you can choose an instance of creativity you experienced in your own problem-solving, or something you witnessed in another person's work.
6. For any problem you could not solve this week, suggest a strategy you might try to tackle the problem, and show what happens if you try it. Describe any strategic gaps you are unable to bridge, and list 3 helpful insights that may help another person trying to tackle the problem.
7. Choose one interesting problem from one of our texts, of medium difficulty and that was not assigned. Describe why you find it interesting. Then either solve it, or find a solution online and work through it, using your own understanding to critique that solution and improve it.

8. Write 10 true/false questions that illustrate a variety of ideas from this week's material that you might put on the homework if you were teaching the class. Give a key, explain the answers, then explain why you chose these particular questions and what you hope they will assess.
9. What is a victory that you have achieved this week in the class? It can be a difficult problem that you solved after a long period thinking about it, it can be speaking up during group work or class, anything that you are proud of yourself for. Explain how you achieved this victory, and how you might build on it as the semester continues.
10. Explain the impact of COVID on your work this week. Did you have trouble focusing for any reason (roommates or family always around, bad news, etc.)? Were you unable to get any work done? Or to the contrary, did you work better because you couldn't go anywhere? Did you find comfort being around your loved ones?