

Computer Science Foundations

Puzzle-Solving Workshop and Seminar

Episode 2—October 7

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Welcome to the Puzzle-Solving Workshop and Seminar for Computer Science Foundations. You will notice there are two parts to this thread: *workshop* and *seminar*. Workshop is meant to strengthen your problem-solving skills, to help you in the Discrete Math thread as well as future math and computer science courses. Seminar is meant to work on your discussion, writing, and creativity skills.

In today's workshop (the first hour), we will go over the solutions to last week's problems (Gauss's problems and Ada's problems) and grade each other's work. We will also receive one new problem to test the propositional logic skills you learned in Discrete Math lecture last week.

In today's seminar (the second hour), we will generate ideas in groups for your academic statement, then we will freewrite. To generate ideas, we will divide up into groups of five again with the three roles we discussed last time: timekeeper, notetaker, and moderator.

1 Problem 1

Now we will test how general your solution was to Gauss's problem from Workshop 1. Write the sum of all the *even* numbers from 2 to n .

$$\Theta = 2 + 4 + 6 + \dots + n \tag{1}$$

2 Problem 2

This builds on Ada's problem from Workshop 1. Consider the final version of that problem where Ada uses three boolean inputs to determine whether or not to bike to school: `thunderAndLightning`, `classAt100Clock`, and `isTired`.

- (a) Given that Ada chooses to bike to school, what are all the possible values of the three input variables that can lead to this outcome?

- (b) What is the equivalent boolean logic expression (using `and`, `or`, `not`) in Python for expressing Ada's decision-making rules in a single line?