

MATH3250 COMBINATORICS READING HW 2

Instruction. Please submit all questions. Both handwritten or typed solutions are accepted.

You are encouraged to discuss the problems with other people in or outside of class. You are also welcome to come see me to show me what you've done so far.

You would need the [first chapter](#) and second chapter of Bóna's "A Walk Through Combinatorics" textbook (4th, 3rd, or 2nd Ed.)

1. TOPIC REQUESTS!

Are there any interesting topics in Combinatorics that you hope we will cover? If you are not familiar with the content of Combinatorics, you can do a quick internet search and see if any of the information that pops up seems interesting. If you are not sure, then you don't have to request anything.

I apologize ahead of time if you suggest a topic but we don't cover it this semester.

2. CORRECTION TO READING HW 1

If some of your answers to READING HW 1 problems were incomplete or incorrect, redo your proofs here. First attempt to write your proofs without looking at your class notes.

3. WRITE YOUR OWN PIGEON-HOLE PRINCIPLE PROBLEM

Please write your own problem and solve it using the Pigeon-hole Principle. (Student's problems may be chosen for future exams' questions.)

4. SEC 2.1 WEAK INDUCTION

- (1) Copy the algorithm of weak induction (from the first page of Sec 2.1 Weak Induction).
- (2) Write down the explanation for why the method of induction is valid. Add a few extra phrases and sentences to the book's explanation.

5. BOOK EXAMPLE

Complete at least one of the following.

- (1) Go to Example 2.1 and attempt to solve it on your own. Then compare your solution with the book's solution.
- (2) Go to Example 2.3 and attempt to solve it on your own. Then compare your solution with the book's solution.

ATTEMPT PRESENTATION PROBLEMS (DON'T SUBMIT)

Attempt some of the presentation problems for week 2:

egunawan.github.io/combinatorics/hw/wk2problems.pdf

Some of the questions will be chosen to be presented during class this week. You may volunteer to present or be an audience member.

Some of the questions will be picked for future homework and exam questions.

6. SURVEY

- i. Approximately how much time did you spend on this homework?
- ii. Write down the resources (for example, Bóna's textbook or a math.stackexchange.com/ page) you referenced and the people that you talked with.
- iii. Any questions about this homework?