CS1800
Fall 2025
Recitation 10 - Practice Questions for Quiz 3
November 12 & 13, 2025

Quiz Preparation

Our third quiz is coming up on November 14th! There are two questions on the quiz, and there are practice problems for each topic below. It can also be a useful study practice to go back and revisit previous recitation practice problems on the same topics for extra practice.

Recitations

CS1802 Recitations are dedicated time set aside to work on practice problems that specifically prepare you for the current homework or upcoming quiz.

Recitations are in-person and attendance is expected.

The solutions are published at the same time as the problems, so you can check your work. There is no need to submit anything.

Approaching the Problems

These practice problems are labelled according to which Homework or Quiz topic they will help you prepare for. You do not need to complete every practice question; we encourage you to do at least one per topic, and to prioritize the topics you would like to practice.

Instructors & Teaching Assistants

Your recitation is led by a Khoury College professor, assisted by a knowledgeable and wonderful Teaching Assistant. Professors and TAs are fantastic resources, and you have the opportunity in recitation to work with them in a smaller group -- I strongly recommend you take advantage of the time to review your solutions to these practice problems, ask for help on the homework, or review material from lecture.

Practice for Probability (Quiz 3 Question 1)

A A roulette wheel has 38 slots: 18 red, 18 black, and 2 green. Suppose you spin the wheel once.

What is the probability that the spin lands on red given that it is not green?

B We spin the wheel 5 times. We care about the numbers only. What is the probability of getting the outcome *13-15-6-15-28?*

C We spin the wheel 5 times. We care about the color **only** and not the numbers. What is the probability of getting the outcome *RRBGG?*

D We spin the wheel 5 times. We care about the color **only** and not the numbers. What is the expected number of Reds in our outcome?

E Let's modify the roulette game with a payout: You win $5 if the ball lands on red, lose $3 if it lands on black, and lose $10 if it lands on green.. How much do you expect to win on one spin?

F You draw 2 cards from a standard deck without replacement.What is the probability that they are both hearts?

G You draw 2 cards from a standard deck without replacement.What is the probability that they are both hearts, given that at least one is a heart?

H You draw 2 cards from a standard deck without replacement. Given that both cards in your two-card hand are red (hearts or diamonds), what is the probability they're both hearts?

I You draw 2 cards from a standard deck without replacement. How many hearts do you expect to have?

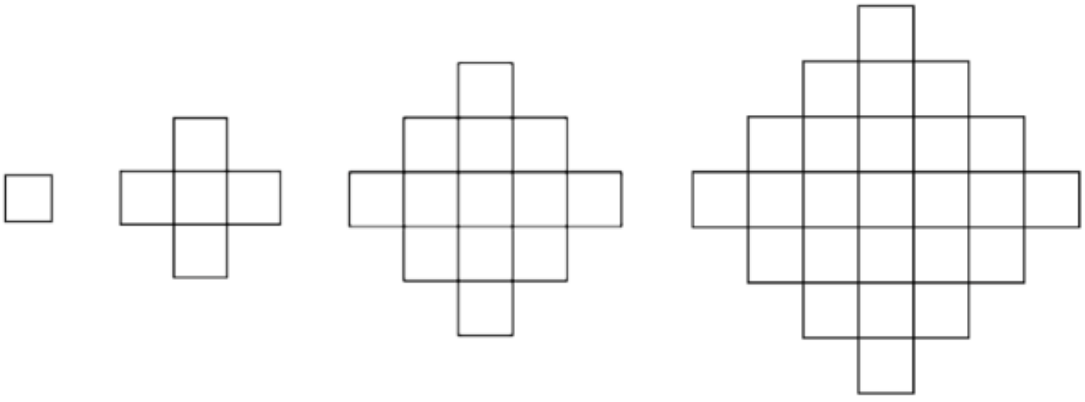
Practice for Sequences & Summations (Quiz 3 Question 2)

Consider the sequence that starts with the terms $3,\ 5,\ 7,\ 9,\ \ldots$

A What type of sequence is this?

B What is the value of the 12th term, a_{12}?

For this problem, a_k denotes the number of squares in each diagram, so as depicted below,
$a_1 = 1,\ a_2 = 5,\ a_3 = 13,\ a_4 = 25$,etc.



C What type of sequence do the squares represent -- arithmetic, geometric, quadratic, or none?

D How many squares would be in the 10th figure?

A staircase is built using blocks. Each step is one block tall and one block deep.

- A 1-step staircase uses 1 block
- A 2-step staircase uses 3 blocks
- A 3-step staircase uses 6 blocks
- A 4-step staircase uses 10 blocks
- A 5-step staircase uses 15 blocks

The volume of each block is 27 cubic inches.

E How many blocks would be needed for a 7-step staircase?

F What is the total volume of a 7-step staircase?