Pre-class preparation

Please watch the following video:

- Video: Naive definition and Counting

Objectives

By the end of the day's class, students should be able to do the following:

- State the 'naive' definition of probability.
- Apply the multiplication rule to the counting problems of enumerating possibilities, sampling with replacement, and sampling without replacement.
- Compute the probabilities of outcomes using the multiplication rule and symmetries in conjunction with naive probability.
- Define and use the binomial coefficient to calculate probabilities of outcomes.

Reflection Questions

Please submit your answers to the following questions to the corresponding Canvas assignment by 9:00AM:

1. Three fair coins are tossed and the sequence of Heads or Tails is recorded. What is the probability that *at least* one Heads is obtained?
2. A standard combination lock has a dial with tick marks for 40 integers numbered from 0 to 39. The lock's code consists of a sequence of three numbers that must be dialed in the correct order to open the lock. Each of the 40 numbers may appear in each of the three positions, regardless of the numbers for the other two positions. How many possible codes are there?
3. Suppose that we roll two fair die, where one dice has six sides (numbered 1-6) and the other dice has four sides (number 1-4). Using counting methods and the naive definition of probability, what is the probability of rolling a sum less than 4?
4. (Optional) Is there anything from the pre-class preparation that you have questions about? What topics would you like would you like some more clarification on?