In-Class Worksheet
Discrete Math & Functional Programming— CSCI 054— Fall 2024
Instructor: Osborn

A deck of cards consists of 52 cards, each with a rank (2-10, J, Q, K, A) and a suit (club, diamond, heart, spade).

- If you draw a card from a perfectly-shuffled deck of cards, what is the probability that the card is a heart?

- If you draw a card from a perfectly-shuffled deck of cards, what is the probability that it is either the Queen of Hearts or the 9 of clubs?

- If you draw two cards (without replacement) from a perfectly-shuffled deck of cards, what is the probability that both cards are hearts?

If you draw two cards (without replacement) from a perfectly-shuffled deck of cards, what is the probability that:

- both cards are hearts?

- the two cards have different suits?

- the two cards sum to 3 (i.e. you draw an Ace and a 2)

I randomly choose a number $1, 2, \ldots, 10$. Consider the following 3 events. Are any pair of them independent?

A: I choose an odd number

B: I choose a prime number

C: I choose a number (strictly) less than 5

I randomly choose a number $1, 2, \ldots, 10$. Consider the following two events. What are the conditional probabilities $Pr[A|B]$ and $Pr[B|A]$?

A: I choose an odd number

B: I choose a prime number