STAT 2857A – Lecture 3 Examples and Exercises

Revised 18/09/24

Example 3.1

Suppose that you roll a (fair) three-sided die three times.

a) What is the probability that you never roll a three?
b) What is the probability that the sum is greater than 4?
c) What is the probability that the number rolled is less than three every time or the sum is greater than 4?

Example 3.2

Identify whether each of the following is a permutation or a combination. What are the values?

The number of: a) hands of 5 cards that can be dealt from a standard deck of 52 unique cards. b) ways for four people to line up. c) selections on the Lotto 6/49. d) teams of 10 students that are possible in a class of 150. e) create 2 lines of 10 from a class of 30 students.

Example 3.3

A standard deck of cards contains 13 cards (A,2,3,...,10,J,Q,K) in each of 4 suits (Clubs, Diamonds, Hearts, Spades).

a) What is the probability that you are dealt a royal flush?
b) What is the probability that you are dealt a royal flush (9, 10, J, Q, K of the same suit) in order?
c) What is the probability that you are dealt a pair (two cards of one face value and three cards of other non-matching face values)?

d) What is the probability of getting a full-house (two cards of one face value and three of another?