

Section 9/2

1 Question 2.1

There are 2,598,960 different poker hands. Suppose I play poker two times so that each time all hands are equally likely regardless of which hand I got the other time.

The chance that I get the same hand both times is equal to (pick one and explain):

(i) 12598960×12598960

(ii) 12598960

(iii) Neither (i) nor (ii)

2 Question 2.3

3. The English alphabet consists of 26 letters. Six letters will be chosen at random without replacement.

a) How many possible sequences of six letters can appear?

b) What is the chance that the sequence is RANDOM?

c) What is the chance that the sequence is not RANDOM but the letters can be rearranged to form RANDOM?

3 Question 2.4

4. A class has eight sections, five of which are in the morning and three in the afternoon. The instructor picks two sections at random without replacement.

Say whether each of the following statements is true or false, and justify your answer.

a) The chance that the first section picked by the instructor is in the morning is $5/8$.

b) The chance that the second section picked by the instructor is in the morning is $5/8$.

c) The chance that both sections picked by the instructor are in the morning is $(5/8)(5/8)$.

4 Question 2.8

8. A club is selling 100 raffle tickets, 5 of which are winning tickets. Assume that tickets are sold one at a time, one ticket per buyer, and that they are like draws made at random without replacement from all the tickets.

Lin and Rishab are 16th and 28th in the line to buy tickets. After much waiting, they finally get their tickets.

If possible, find the following probabilities. If it is not possible, explain why not.

a) Lin gets a winning ticket

b) Rishab gets a winning ticket

c) only one of Lin and Rishab gets a winning ticket