Quiz 2
Probability & Statistics-Fall 2023

Solution

Student ID _____

Question 1: Suppose one card is drawn from an ordinary deck of 52 playing cards, what is the probability that it will be a red card? [2 marks]

Let P(A) = 26 red Cards

$= \frac{26}{52} = 0.5$

Question 2: Suppose you will win the game if you pick a red marble from a jar containing 4 red and 3 black marbles and you get heads on the toss of a coin. Find the probability of winning. [2 marks]

Total marbles = 7

P(A) = 4 red So, P(A) = 4/7

P(B) = 1 red So, P(B) = 1/2

Wining Prop = $\left(\frac{4}{7}\right) \times \left(\frac{1}{2}\right) = \frac{4}{14} = \frac{2}{7}$

Question 3: A student goes to the Park. The probability that she Chooses [3 marks]

i) A lunch is 0.40,
ii) A movie is 0.30, and
iii) Both lunch and movie is 0.20.

What is the probability that the student chooses a lunch, movie, or both?

Let P(A) = 0.40 & P(B) = 0.30 & P(A∩B) = 0.20

P = P(A) + P(B) − P(A ∩ B)

= 0.40 + 0.30 − 0.20

= 0.50

Question 4: An experiment is setup to first roll a die, followed by spinning a spinner. As shown, the die is a six-sided die and the spinner has four equal divisions labeled 1, 2, 3 and 4. Set *A* will contain all possibilities of the die rolling an even number and the spinner showing 4. Set *B* will contain all possibilities of the die and the spinner showing the same value. Find the probability of an outcome belonging to set *A* but not in set *B* [3 marks]

~~P(A)~~ = A {(2,4), (4,4), (6,4)}

P(A) = = 3/24 = 1/8

B = {(1,1), (2,2) (3,3) (4,4)}

P(B) = 4/24 = 1/6

P(A ∩ B) = 1/24