

PRP Assignment 1

1. If a person has four keys, out of which one is the true key to a particular lock. Then find the probability of opening the lock in the x trial when the trial key is eliminated after every trial. Also write the sample space for the problem.
2. An individual tosses a coin from a distance onto the surface of a square table ruled in 1 cm square. The diameter of the coin is $\frac{3}{4}$ cm. what is the probability that it will fall entirely inside a square (assuming that the coin lands on the table).
3. A fair coin is independently flipped m times, n times by Ram and $m - n$ times by Ramesh. Show that the probability that Ram and Ramesh flip the same numbers of heads is equal to the probability that there are a total of n heads.
4. 3 individual tosses a coin. If their outcomes does not matches ,the game will end. If their outcomes matches ,they retoss the coin. If the coins are fair, what is the probability that the game will end with the first round of tosses? If all three coins are biased and have probability 0.25 of landing tails, what is the probability that the game will end at the first round?
5. An individual uses the following gambling system everytime Kohli is batting. He bets Rs. 1000 that Kohli will hit a four on the first ball he faces. If he wins, he quits. If he loses then he makes the same bet a second time (i.e Kohli will hit a four on the second ball) only this time he bets Rs. 2000; and then regardless of the outcome, quits. Assuming that he has a probability of 0.5 of winning each bet, what is the probability that he goes wins money?