

TUTORIALS

1. A large company in Limpopo purchases a certain kind of computer device from a local manufacturer. The manufacturer point out that the defective rate of this computer device is 3%.
 - a) If the well trained inspector randomly select 20 items from a batch. What is the probability that at least one defective item will be among these 20?
 - b) If the retailer receives 10 batches in a week and the well-trained inspector chooses to randomly tests 20 of these computer devices per batch. What will be the probability that there is exactly 3 batches each having at least one defective device among the 20 that are carefully chosen and tested from the batch?
2. Suppose that 10 is the average number of petrol tankers arriving in each day at a petrol garage in Mankweng. The storage facilities at this garage can only handle at most 15 tankers each day. Calculate the probability that in a given day tankers should be turned away.
3. In a certain hardware facility in Turfloop, accidents or injuries occur rarely. Suppose that Mr Ngobeni, a store manager, knows that the probability of an injury occurring to his workers on any given day is 0.005 and that injuries are independent of each other.
 - a) Find the probability that for any certain period of 400 days, the store will have injury on one day?
 - b) Find the probability that there are at most 3 days with an injury?
4. Suppose that customers enter a pep cell store in Lebowakgomo complex, on average 1 every 2 minutes.
 - a) Calculate the probability that no customers enter this store between 12:00 and 12:05?
 - b) What is the probability that at least four customers come into the store between 12:00 and 12:05?
5. Suppose that the number of defectives in a certain type of magnetic tape measure from a local retail store has a Poisson distribution and that this tape contains, on the average, 3 defectives per 1000 feet. What will be the probability that a roll of this tape 1200 feet long have no defective.

6. A Theory of Distribution student at the University of Limpopo has no knowledge of the chapter to be tested on Test 2 with 10 true-false questions. So, she decided to flip a fair coin in an attempt to determine the answer to each given question.
 - a) Calculate the probability that at least six questions of her answers will be correct?
 - b) Find the probability that at most two of her questions are answered correctly?
7. A doctor at Pietersburg provincial hospital reported that 30% of the elderly women in the Limpopo, Capricorn region have above normal diabetes levels. Suppose that this is true, what will be the probability that from a sample of 14 elderly women tested for diabetes, more than 6 of them will have above normal diabetes levels.
8. Mr Nkosi, a good statistics student assistance, during tutorials prepared a five-multiple-choice question quiz with five possible answers, with one of the answers being correct. If Mrs Malatji, a student in class guesses randomly and independently, find the probability that Mrs Malatji is correct only on two questions?
9. Show that a geometric distribution is a valid probability mass function.
10. Suppose that in a family of a taxi association chairperson in Lephalale, Matlou's family, the probability that they will have a girl is 0.3. Suppose that in their family there are 6 children, What will be the probability that
 - a) Their children are all boys
 - b) At least 2 of their children are girls
 - c) They have exactly three girls
 - d) all their children are girls.