Assignment 12

Due: 19-01-23, 22:00 HKT

Unit 14 - Week 12

Assessment 2

1. Let X be the random variable representing the number of trials needed to obtain exactly 3 successes in a binomial distribution with 10 trials and a success probability of 0.3. Find the probability mass function (PMF) of X. 1 point

2. Let Y be the random variable representing the number of defective items in a sample of 20 items. Find the probability mass function (PMF) of Y if the probability of a defective item is 0.1. 1 point

3. Let Z be the random variable representing the total time spent on a project. Find the probability density function (PDF) of Z if the project takes an average of 4 hours with a standard deviation of 1 hour. 1 point

4. Let W be the random variable representing the total number of calls received by a call center in a day. Find the cumulative distribution function (CDF) of W if the call center receives an average of 10 calls per day with a standard deviation of 2 calls. 1 point

5. Let V be the random variable representing the total amount of money spent by a customer in a store. Find the cumulative distribution function (CDF) of V if the customer spends an average of $50 with a standard deviation of $10. 1 point

6. Let U be the random variable representing the total distance traveled by a car in a day. Find the probability density function (PDF) of U if the car travels an average of 100 miles with a standard deviation of 20 miles. 1 point

7. Let M be the random variable representing the total number of messages received by a user in a day. Find the expected value (Mean) and variance of M if the user receives an average of 50 messages with a standard deviation of 10 messages. 1 point

8. Let T be the random variable representing the total time spent on a project. Find the expected value (Mean) and variance of T if the project takes an average of 4 hours with a standard deviation of 1 hour. 1 point

9. Let S be the random variable representing the total number of successes in a binomial distribution with 10 trials and a success probability of 0.3. Find the expected value (Mean) and variance of S. 1 point

10. Let N be the random variable representing the total number of failures in a binomial distribution with 10 trials and a failure probability of 0.7. Find the expected value (Mean) and variance of N. 1 point

11. Let F be the random variable representing the total number of failures in a Poisson distribution with a rate parameter of 2. Find the expected value (Mean) and variance of F. 1 point

12. Let C be the random variable representing the total number of calls received by a call center in a day. Find the expected value (Mean) and variance of C if the call center receives an average of 10 calls per day with a standard deviation of 2 calls. 1 point

13. Let B be the random variable representing the total amount of money spent by a customer in a store. Find the expected value (Mean) and variance of B if the customer spends an average of $50 with a standard deviation of $10. 1 point

14. Let D be the random variable representing the total distance traveled by a car in a day. Find the expected value (Mean) and variance of D if the car travels an average of 100 miles with a standard deviation of 20 miles. 1 point

15. Let A be the random variable representing the total number of messages received by a user in a day. Find the expected value (Mean) and variance of A if the user receives an average of 50 messages with a standard deviation of 10 messages. 1 point