Progress

NPTEL » Advanced Probability Theory

1 point

1 point

1 point

1 point

1 point

Unit 9 - Week 8

How does an NPTEL online

Course outline

course work?

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

(Lec19)

(Lec20)

(Lec21)

Week 9

Week 10

Week 11

Week 12

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Assignment Solution

Advanced Probability Theory

Advanced Probability Theory

Advanced Probability Theory

Quiz : Assignment 8

Week 8 Feedback Form

N(0,2) N(1,2) N(1,1) No, the answer is incorrect. Score: 0 N(0,1) N(1,1) No, the answer is incorrect. Score: 0 Let X and Y be two independent Geometric(p) random variables. Find $E(\frac{X}{Y})$ $\frac{1}{p}$ Im(p) $\frac{1}{1-p}$ In($\frac{1}{p}$) $\frac{1}{1-p}$ No, the answer is incorrect. Score: 0 Accepted Answers: In($\frac{1}{p}$) $\frac{1}{1-p}$ Source that the number of customers visiting a fast food restaurant in a given day follows Poisson(λ). Assume that each customer purchases a drink with probability p, independently from other customers. Let X be the number of customers who purchase drinks. Let Y be the number of customers that do not purchase drinks. Find $E[X^2Y^2]$. Pq $\lambda^2 pq(\lambda^2 pq + \lambda + 1)$ 4) Let $X_1, X_2,, X_n$ be independent $U(0,1)$ random variables. Find the $E(\min(X_1, X_2,, X_n))$ $\frac{1}{n+1}$ $\frac{n}{n+1}$	2) 2)	
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29 Let X and Y be two independent Geometric(p) random variables. Find $E(\frac{X}{Y})$ $\begin{vmatrix} 1 & p \\ n(p) \\ \frac{1}{1-p} \\ n(\frac{1}{p}) \frac{1}{1-p} \end{vmatrix}$ No, the answer is incorrect. Score: 0 80 Suppose that the number of customers visiting a fast food restaurant in a given day follows $Poisson(\lambda)$. Assume that each customer purchases a drink with probability p , independently from other customers. Let X be the number of customers who purchase drinks. Let Y be the number of customers that do not purchase drinks. Find $E[X^2Y^2]$. Pq $\lambda^2 pq(\lambda^2 pq + \lambda + 1)$ No, the answer is incorrect. Score: 0 8. Accepted Answers: $\lambda^2 pq(\lambda^2 pq + \lambda + 1)$ 4. Let $X_1, X_2,, X_n$ be independent $U(0,1)$ random variables. Find the $E(\min(X_1, X_2,, X_n))$ $\frac{1}{n+1}$ $\frac{n}{n+1}$ 0.5 0.3 No, the answer is incorrect. Score: 0 8. Accepted Answers: $\frac{1}{n+1}$ $\frac{n}{n+1}$ $\frac{n}{n+1}$ 0.5 0.3 No, the answer is incorrect. Score: 0 8. Accepted Answers: $\frac{1}{n+1}$ $\frac{n}{n+1}$ $\frac{1}{n+1}$ $\frac{n}{n+1}$ 0.7 1.7 1.7 1.7 1.7 1.7 1.7 1.7		
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5) Which of the following is/are correct for a t-distribution with 10 degrees of freedom? There are more scores in the tails of a t distribution than in a standard normal distribution	d Answers:	
There are more scores in the tails of a t distribution than in a standard normal distribution		
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There are more scores in the center of a t distribution than in a standard normal distribution	re are more scores in the tails of a t distribution than in a standard normal distribution	
There are equal scores in the center of a t distribution and a standard normal distribution		
There are equal scores in the tails of a t distribution and a standard normal distribution	re are equal scores in the tails of a t distribution and a standard normal distribution	

Accepted Answers:

No, the answer is incorrect.

Score: 0

O 5

O 15

O 10

0

01

Score: 0

 \bigcirc n 2n ○ n/2

7) What is the mean of a chi squared random variable with n as the degress of freedom?

6) What is the expectation of a t distributed random variable with 5 degrees of freedom?

Accepted Answers:

No, the answer is incorrect.

and sum the squares. What is the probability that the sum of these 3 squares will be 9 or higher? You may use the following values $P(X \ge 9) = 0.4373$, where $X \sim \chi_9^2$, $P(X \ge 9) = 0.0293$, where $X \sim \chi_3^2$, $P(X \ge 9) = 0.1736$, where $X \sim \chi_6^2$, $P(X \ge 9) = 0.0027$, where $X \sim \chi_1^2$. 0.4373 0.0293

8) Imagine that you sample 3 scores from a standard normal distribution, square each score,

0.1736 0.0027

No, the answer is incorrect.

Score: 0

Accepted Answers: 0.0293

F distributed random variable can only take positive values and is symmetric around the mean

9) Which of the following is/are true?

F distributed random variable can only take positive values and is positively skewed

F distributed random variable can take both positive and negative values F distributed random variable can only take positive values and is negatively skewed

No, the answer is incorrect. Score: 0

Accepted Answers: F distributed random variable can only take positive values and is positively skewed

10) Which of the following is true? (If X is F(n,m), then $P(X \leq F_{n,m;\alpha}) = \alpha$)

 $F_{n,m;\alpha} = \frac{1}{F_{m,n;1-\alpha}}$ $F_{n,m;\alpha} = F_{m,n;1-\alpha}$ $F_{n,m;\alpha} = \frac{1}{F_{n,m;1-\alpha}}$

No, the answer is incorrect. Score: 0 Accepted Answers:

All of the above

$$F_{n,m;\alpha} = \frac{1}{F_{m,n;1-\alpha}}$$