STATISTICS-I

Convergence of distribution

Definition:

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let the distribution function of the random variable Yn depend on n , a positive integer. If F(Y) is a distribution function &if $\lim_{n \to \infty} Fn$

(Y)=F(Y)

for every point y at which F(y) is continuous then the random variable Ynis said to have ***an limit distribution*** *with distribution function F(y)*

Example 1:

Let Yn denote the n-th order statistics of a random variable sample x1,x2 ……xn form a distribution having pdf $f(x)= 1/\theta$, $0<x<\theta$, $0< \theta<\infty$

$= 0 \quad , \quad elsewhere$

find the limiting distribution of Yn.

Example 2:

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let X have a distribution function

Fn(x)=∫√(1/n)√(2∏)e-(nw2/2)dw.

If we change the variable v=√nw. then find the limiting distribution of X

Example 3:

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let Yn denote the n-th order statistics of a random sample from the uniform distribution of eg 1.

$h_n(z)=(\theta - z/n)^{n-1} / \theta^n , 0<z<n\theta$

$= 0$, else where

Thank you

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