Stat 134: Section 11

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Conceptual Review

Please discuss these short questions with those around you in section. These problems are intended to highlight concepts from lecture that will be relevant for today's problems.

a. What is the taylor expansion of e^x?

b. If $X \sim Pois(\lambda)$ on $\{0, 1, 2, \ldots\}$, what is $P(X = x)$?

Problem 1

Prove that mean and variance of the Poisson distribution with parameter λ are both λ.

Problem 2

Suppose X, Y, and Z are independent Poisson random variables, with parameters μ_X, μ_Y, μ_Z respectively. Find:

a. $P(X + Y) = 4$

b. $E[(X + Y + Z)^2]$

Problem 3

Let X have Poisson (λ) distribution. Calculate:

a. $E(3X + 5)$

b. $Var(3X + 5)$

c. $E[\frac{1}{1+X}]$