Stat 134: Section 16

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Conceptual Review

a. If (X, Y) has density $f(x, y)$ in the plane, then what is the density of $X + Y$?

b. What is the density of Y/X?

Problem 1

Let $X = U + V$, $Y = UV$ for independent uniform $(0, 1)$ variables U and V. Find the density of X and Y.

Problem 2

Suppose $X, Y \sim Exp(\lambda)$, and X, Y are independent.

(a) Find the density of $Z = X/Y$.

(b) Find the density of $W = \frac{X}{X+Y}$