Stat 134: Change of Variable/Operations Review

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Problem 1

Let $X \sim Unif(0,1)$ and Y be the value of a 6 sided die roll. Let $Z = X + Y$.

a. Is Z discrete or continuous? Why?

b. Find the distribution of Z.

Problem 2

Let $X \sim Exp(\lambda)$ and $Y = e^{-X}$. Find the density of Y.

Problem 3

Suppose U_i iid Unif(8, 13) for n = 10. Let X = $U_{(4)}$. Find:

(a) $f_X(x)$

(b) $E(x)$

(c) $Var(X)$

Problem 4

Suppose X, Y, Z iid Unif(0, 1). Let $W = (XY)^Z$. Find the distribution of W.