Stat 134: Section

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Conceptual Review

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

a. How do you compute the distribution of the sum of two random variables?

b. How do you compute the distribution of the ratio of two random variables?

Problem 1

Let S_3 be the sum of 3 independent uniform (0,1) random variables. Find $P(S_3 \leq 1.5)$.
Ex 5.4.2 in Pitman's Probability

Problem 2

Find the density of $Z = X - Y$, where X, Y are independent exponential (λ) variables.
Ex 5.4.13 in Pitman's Probability

Problem 3

Suppose $X_1, \cdots, X_n$ are independent gamma distributions with parameters (r_i, λ). What is the distribution of $X_1 + X_2 + \cdots + X_n$?
Ex 5.4.6 in Pitman's Probability

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