

Stat 134: Section 7

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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 $\mathbb{E}(X)$?

Problem 1

Derive the expectation of a uniform R.V. on $\{0, 1, \dots, n\}$.

Problem 2

Let A and B be independent events, with indicator random variables I_A and I_B .

1. Describe the distribution of $(I_A + I_B)^2$ in terms of $P(A)$ and $P(B)$;
2. What is $\mathbb{E}(I_A + I_B)^2$?
3. Suppose we now have a set of identical but not necessarily independent indicators I_1, I_2, \dots, I_n . Derive a useful formula for $\mathbb{E}(I_1 + I_2 + \dots + I_n)^2$