3. Exercise: Markov inequality

Exercise: Markov inequality

1/1 point (graded)

Let Z be a nonnegative random variable that satisfies $\mathbf{E}[Z^4] = 4$. Apply the Markov inequality to the random variable Z^4 to find the tightest possible (given the available information) upper bound on $\mathbf{P}(Z \geq 2)$.

$\mathbf{P}(Z \geq 2) \leq$ 1/4 ✔ **Answer:** 0.25

Solution:

We have

$$\mathbf{P}(Z \geq 2) = \mathbf{P}(Z^4 \geq 16) \leq \frac{\mathbf{E}[Z^4]}{16} = \frac{4}{16} = \frac{1}{4}.$$

提交 You have used 1 of 3 attempts

Answers are displayed within the problem

讨论

显示讨论

Topic: Unit 8 / Lec. 18 / 3. Exercise: Markov inequality