17. Exercise: Linearity of expectations drill

Exercises due Feb 28, 2020 05:29 IST *Completed*

Exercise: Linearity of expectations drill

1/1 point (graded)

Suppose that $\mathbf{E}[X_i] = i$ for every i. Then,

$\mathbf{E}[X_1 + 2X_2 - 3X_3] =$ -4 ✔ **Answer:** -4

Solution:

Using linearity,

$$\begin{aligned}\mathbf{E}[X_1 + 2X_2 - 3X_3] &= \mathbf{E}[X_1] + \mathbf{E}[2X_2] - \mathbf{E}[3X_3] \\ &= \mathbf{E}[X_1] + 2\mathbf{E}[X_2] - 3\mathbf{E}[X_3] \\ &= 1 + 2 \cdot 2 - 3 \cdot 3 \\ &= -4.\end{aligned}$$

Submit You have used 3 of 3 attempts

Answers are displayed within the problem

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Why is it not 0?

I simply apply the linearity of expectations and the answer reaches 0. What am I missing?

2 new 6