

Quiz for Week 5

⚠ This is a preview of the published version of the quiz

Started: 2 Oct at 23:53

Quiz instructions

Quiz time is from 17.15 to 18.00 of September 13, 2023.

Question 1

1 pts

Rolling an unfair die. Suppose that

$$P(\text{getting } 1) = P(\text{getting } 3) = P(\text{getting } 5) = 0.2$$

$$P(\text{getting } 2) = P(\text{getting } 4) = 0.15; \quad P(\text{getting } 6) = 0.1.$$

Let X be the number obtained when we roll this die once. $E(X) = ?$

☐ 3.0

☐ 3.1

☐ 3.2

☒ 3.3

Question 2

1 pts

Which of the following is **INCORRECT**?

☒ Let $f(x)$ be the probability function of a random variable X . Then, we must have $0 \leq f(x) \leq 1$.

☐ Let $F(x)$ be the cumulative distribution function of a random variable X . Then, we must have $0 \leq F(x) \leq 1$.

☐ Let \mathbf{X} be a random variable such that $\mathbf{E}(\mathbf{X}) < \infty$. Then we must have $\mathbf{E}(\mathbf{X}^2) \geq (\mathbf{E}(\mathbf{X}))^2$.

☐ None of the given options.

Question 3

1 pts

The probability function for a random variable \mathbf{X} is given below.

$$f(x) = \begin{cases} \frac{1}{8}x & 0 \leq x \leq 4 \\ 0 & \text{elsewhere} \end{cases}.$$

Then $\mathbf{E}(\mathbf{X}^2) = ?$

☐ 4

☐ 64/9

☒ 8

☐ None of the given options.

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