Quiz 7

1

1 point possible (graded)

Markov's Inequality only applies to discrete random variables.

- ○ True

- ○ False ✔

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ⓘ Answers are displayed within the problem

2

1 point possible (graded)

Select the correct version(s) of Markov's Inequality from the following:

- ☐ $P(X \geq \alpha\mu) \leq \frac{1}{\alpha}$ ✔

- ☐ $P(X \geq \alpha\mu) \leq \mu\alpha$

- ☐ $P(X \geq \mu) \leq \frac{1}{\alpha}$

$P(X \geq \alpha) \leq \frac{\mu}{\alpha}$ ✔

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3

1 point possible (graded)

What is a disadvantage of using Chebyshev's instead of Markov's?

☐ Requires a known σ ✔

☐ Chebyshev's cannot be used for negative valued random variables

☐ Chebyshev's boundary decreases quadratically instead of linearly

☐ Markov's gives a tighter bound

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4

1 point possible (graded)

In plain terms, the Weak Law of Large Numbers states that as the number of experiments approaches infinity, the difference between the sample mean and the distribution mean can be as small as possible.

○ True ✔

○ False

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ⓘ Answers are displayed within the problem

5

1 point possible (graded)

If X has moment generating function $M_X(t) = (1 - 3t)^{-1}$, what is $V(X)$?

○ 6

○ 9 ✔

○ 12

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ⓘ Answers are displayed within the problem

10

1 point possible (graded)

$M_X(t)$ denote the moment generating function of X. Which of the following holds for all X and Y?

☐ $M_X(0) = 1$ ✔

- [ ] $M_X(t) \geq 0$ for all t ✔

- [ ] $M_{3X+2}(t) = e^{2t} \cdot M_X(3t)$ ✔

- [ ] $M_{X+Y}(t) = M_X(t) M_Y(t)$

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ℹ Answers are displayed within the problem