EoS - E-tutorial 04 - WiSe 2022/2023

StatRef.E.2.6.00040 (60 Punkte)

Sie haben die folgende Antwort gegeben:

You know that a continuous random variable only takes on non-negative values. The analysis of a rather large random experiment results in an expected value of $E(X) = 5$ and a variance of $Var(X) = 5$.

Hint: Please round your results - if necessary and if not asked otherwise - to **four** decimal places.

a) (30 Points) You want to state an estimate for the interval probability $P(X \geq 10)$. Which of the following estimates corresponds to the estimate derived using Markov's inequality? The estimate for the sought interval probability is less than or equal to 0.5.

b) (30 Points) Now you want to state an estimate for the interval probability $P(0 \leq X \leq 10)$ using Tchebysheff's inequality. Which of the following estimates corresponds to your result? The estimate for the sought interval probability is greater than or equal to 0.8 .

Die bestmögliche Lösung lautet:

You know that a continuous random variable only takes on non-negative values. The analysis of a rather large random experiment results in an expected value of $E(X) = 5$ and a variance of $Var(X) = 5$.

Hint: Please round your results - if necessary and if not asked otherwise - to **four** decimal places.

a) (30 Points) You want to state an estimate for the interval probability $P(X \geq 10)$. Which of the following estimates corresponds to the estimate derived using Markov's inequality? The estimate for the sought interval probability is less than or equal to 0.5.

b) (30 Points) Now you want to state an estimate for the interval probability $P(0 \leq X \leq 10)$ using Tchebysheff's inequality. Which of the following estimates corresponds to your result? The estimate for the sought interval probability is greater than or equal to 0.8 .

Sie haben 60 von 60 möglichen Punkten erreicht.