EoS - E-tutorial 04 - WiSe 2022/2023

StatRef.E.2.4.00014 (60 Punkte)

Sie haben die folgende Antwort gegeben:

The joint distribution of two random variables X and Y is characterised by the following table:

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

	X=3	X=4	X=6
Y=1	0.27	0.01	0.06
Y=5	0.17	0.11	0.06
Y=7	0.03	0	0.29

a) (15 Points) Please calculate the expected value of the random variable X. 4.35

b) (15 Points) Please calculate the variance of the random variable Y. 6.2016

c) (15 Points) You know that the random variable X takes on the value 4. Please calculate the conditional expected value $E(Y|X=4)$ based on this additional knowledge. 4.6667

d) (15 Points) Now consider the transformed random variable $Z = 7 + 10X$. Please calculate the variance $Var(Z)$ of this variable. You know that an expected value of $E(Y) = 4.28$ results for the random variable Y and that the random variable X has got a variance of $Var(X) = 1.99$. 199

Die bestmögliche Lösung lautet:

The joint distribution of two random variables X and Y is characterised by the following table:

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

	X=3	X=4	X=6
Y=1	0.27	0.01	0.06
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a) (15 Points) Please calculate the expected value of the random variable X. 4.35

b) (15 Points) Please calculate the variance of the random variable Y. 6.2016

c) (15 Points) You know that the random variable X takes on the value 4. Please calculate the conditional expected value $E(Y|X=4)$ based on this additional knowledge. 4.66666666666667

d) (15 Points) Now consider the transformed random variable $Z = 7 + 10X$. Please calculate the variance $Var(Z)$ of this variable. You know that an expected value of $E(Y) = 4.28$ results for the random variable Y and that the random variable X has got a variance of $Var(X) = 1.99$. 199

Sie haben 60 von 60 möglichen Punkten erreicht.