Exercise: Jointly continuous r.v.'s

(2/2 points)

The random variables X and Y are continuous. Is this enough information to determine the value of $\mathbf{P}\left(X^2 = e^{3Y}\right)$?

No ✔ **Answer:** No

The random variables X and Y are jointly continuous. Is this enough information to determine the value of $\mathbf{P}\left(X^2 = e^{3Y}\right)$?

Yes ✔ **Answer:** Yes

Answer:
a) There is no information on the relation between the two random variables. If, for example, $X = \sqrt{e^{3Y}}$, the probability is 1, whereas if $X = \sqrt{e^{3Y}} + 1$, then the probability is zero.

b) The set of points on the x-y plane that correspond to the event $X^2 = e^{3Y}$ is a one-dimensional curve, which has zero area, and therefore zero probability.

You have used 1 of 1 submissions

Lec. 10: Conditioning on a random variable; Independence; Bayes' rule
Exercises 10 due Mar 16, 2016 at 23:59 UT

Standard normal table

Solved problems

Problem Set 5
Problem Set 5 due Mar 16, 2016 at 23:59 UT

Unit summary