



Bookmarks



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Overview
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Probability
models and
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random
variables

Unit overview

Lec. 5: Probability
mass functions
and expectations

Exercises 5 due Mar
02, 2016 at 23:59 UTC

Lec. 6: Variance;
Conditioning on an
event; Multiple
r.v.'s

Exercises 6 due Mar
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Lec. 7:
Conditioning on a
random variable;
Independence of
r.v.'s

Unit 4: Discrete random variables > Problem Set 4 > Problem 6 Vertical: True or False

Problem 6: True or False

(4/5 points)

For each of the following statements, determine whether it is true (meaning, always true) or false (meaning, not always true). Here, we assume all random variables are discrete, and that all expectations are well-defined and finite.

1. Let \mathbf{X} and \mathbf{Y} be two binomial random variables.

a) If \mathbf{X} and \mathbf{Y} are independent, then $\mathbf{X} + \mathbf{Y}$ is also a binomial random variable.

False ▾



b) If \mathbf{X} and \mathbf{Y} have the same parameters, n and p , then $\mathbf{X} + \mathbf{Y}$ is a binomial random variable.

True ▾



c) If \mathbf{X} and \mathbf{Y} have the same parameter p , and are independent, then $\mathbf{X} + \mathbf{Y}$ is a binomial random variable.

True ▾



2. Suppose that $\mathbf{E}[\mathbf{X}] = 0$. Then, $\mathbf{X} = 0$.

False ▾



3. Suppose that $\mathbf{E}[\mathbf{X}^2] = 0$. Then, $\mathbf{P}(\mathbf{X} = 0) = 1$.

True ▾



You have used 1 of 1 submissions

DISCUSSION

Click "Show Discussion" below to see discussions on this problem.

Exercises 7 due Mar
02, 2016 at 23:59 UTC

Solved problems

**Additional
theoretical
material**

Problem Set 4

Problem Set 4 due Mar
02, 2016 at 23:59 UTC

Unit summary

- ▶ Unit 5:
Continuous
random
variables

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