



MITx: 6.041x Introduction to Probability - The Science of Uncertainty



Bookmarks

- ▶ Unit 0:
Overview
- ▶ Entrance
Survey
- ▶ Unit 1:
Probability
models and
axioms
- ▶ Unit 2:
Conditioning
and
independence
- ▶ Unit 3:
Counting
- ▼ Unit 4:
Discrete
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
02, 2016 at 23:59 UTC

**Lec. 7:
Conditioning on a
random variable;
Independence of
r.v.'s**

 Unit 4: Discrete random variables > Lec. 6: Variance; Conditioning on an event;
Multiple r.v.'s > Lec 6 Variance Conditioning on an event Multiple r v s vertical1


Bookmark

Exercise: Variance properties

(1/1 point)

 Is it always true that $\mathbf{E}[X^2] \geq (\mathbf{E}[X])^2$?

Yes ▼



Answer: Yes

Answer:

We know that variances are always nonnegative and that

 $\text{var}(X) = \mathbf{E}[X^2] - (\mathbf{E}[X])^2$. Therefore,

 $0 \leq \text{var}(X) = \mathbf{E}[X^2] - (\mathbf{E}[X])^2$, or, equivalently,

 $\mathbf{E}[X^2] \geq (\mathbf{E}[X])^2$.

You have used 1 of 1 submissions

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

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