



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



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Unit overview

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Problem 6: True or False II

(3/3 points)

Determine whether each of the following statement is true (i.e., always
true) or false (i.e., not always true).

1. Let X be a random variable that takes values between 0 and c only, for some $c \geq 0$, so that $\mathbf{P}(0 \leq X \leq c) = 1$. Then,
 $\text{var}(X) \leq c^2/4$.

True ▾



2. X and Y are continuous random variables. If $X \sim N(\mu, \sigma^2)$ (i.e., normal with mean μ and variance σ^2), $Y = aX + b$, and $a > 0$, then $Y \sim N(a\mu + b, a\sigma^2)$.

False ▾



3. The expected value of a non-negative continuous random variable X , which is defined by $\mathbf{E}[X] = \int_0^\infty x f_X(x) dx$, also satisfies
 $\mathbf{E}[X] = \int_0^\infty \mathbf{P}(X > t) dt$.

True ▾

*You have used 1 of 1 submissions*

DISCUSSION

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

Lec. 10:
**Conditioning on a
random variable;**
Independence;
Bayes' rule

Exercises 10 due Mar
16, 2016 at 23:59 UTC

**Standard normal
table**

Solved problems

Problem Set 5

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

Unit summary

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