

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

■ Bookmarks

Unit 0: Overview

- EntranceSurvey
- Unit 1: Probability models and axioms
- Unit 2: Conditioning and independence
- Unit 3: Counting
- Unit 4: Discrete random variables
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- Unit 6: Further topics on random variables

Unit overview

Lec. 11: Derived distributions

Exercises 11 due Mar 30, 2016 at 23:59 UT Unit 6: Further topics on random variables > Problem Set 6 > Problem 2 Vertical: Functions of a standard normal

■ Bookmark

Problem 2: Functions of a standard normal

(3/3 points)

The random variable \boldsymbol{X} has a standard normal distribution. Find the PDF of the random variable \boldsymbol{Y} , where:

1.
$$Y = 3X - 1$$
.

$$\qquad f_Y(y) = \tfrac{1}{3} f_X(3(y+1))$$

$$f_Y(y) = 3f_X(3(y+1))$$

$$ullet f_Y(y) = rac{1}{3} f_X(rac{y+1}{3})$$
 🗸

$$ullet f_Y(y) = 3f_X(rac{y+1}{3})$$

2.
$$Y = 3X^2 - 1$$
. For $y > -1$,

$$ullet f_Y(y) = rac{1}{6} \cdot \sqrt{rac{3}{y+1}} f_X \left(\sqrt{rac{y+1}{3}}
ight)$$

$$ullet f_Y(y) = rac{1}{3} \cdot \sqrt{rac{y+1}{3}} f_X \left(\sqrt{rac{y+1}{3}}
ight)$$

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ight)$$

Lec. 12: Sums of independent r.v.'s; Covariance and correlation

Exercises 12 due Mar 30, 2016 at 23:59 UT

Lec. 13:
Conditional
expectation and
variance revisited;
Sum of a random
number of
independent r.v.'s
Exercises 13 due Mar

Solved problems

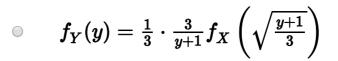
30, 2016 at 23:59 UT @

Additional theoretical material

Problem Set 6

Problem Set 6 due Mar 30, 2016 at 23:59 UT

Unit summary



You have used 2 of 2 submissions

DISCUSSION

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