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The Normal Distribution - Quiz

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Question 1

1 point possible (graded)

True or False: If you have a set of i.i.d normal random variables, then any linear combination of these variables will follow a uniform distribution.

☒ a. True ❌

☐ b. False ✅

Explanation

False. As discussed in class, any linear combination of normally distributed random variables, will also follow a normal distribution. . We will see that this is a very useful property.

Submit

You have used 1 of 1 attempts

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✘ Incorrect (0/1 point)

Question 2

1/1 point (graded)

True or False: Taking a linear transformation of a normally-distributed random variable generates a normally-distributed random variable. In other words, if X_1 is normally-distributed and $X_2 = a + b * X_1$, then X_2 is also normally-distributed.

☒ a. True ✓

☐ b. False

Explanation

This is true. We will also see that this is another useful property of the normal distribution.

Submit

You have used 1 of 1 attempts

✓ Correct (1/1 point)

Question 3

1/1 point (graded)

True or False: If X_1, \dots, X_n are i.i.d. and $X_i \sim N(\mu_i, \sigma_i^2)$ then $Y = \sum_i X_i^2 \sim N(\sum_i \mu_i^2, \sum_i \sigma_i^2)$

☐ a. True☒ b. False ✓**Explanation**

The theorem covered in class only refers to linear combinations of random variables, not arbitrary functions of random variables.

You have used 1 of 1 attempts

✓ Correct (1/1 point)

Discussion**Topic:** Week 1 / The Normal Distribution - Quiz

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