

MITx: 14.310x Data Analysis for Social Scientists

Heli



Bookmarks

- Module 1: The Basics of R and Introduction to the Course
- ▶ Entrance Survey
- Module 2:
 Fundamentals of
 Probability, Random
 Variables, Distributions,
 and Joint Distributions

Fundamentals of Probability

Finger Exercises due Oct 10, 2016 at 05:00 IST

Random Variables, Distributions, and Joint Distributions

Finger Exercises due Oct 10, 2016 at 05:00 IST

Module 2: Homework

Homework due Oct 03, 2016 at 05:00 IST

(A)

Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions > Random Variables, Distributions, and Joint Distributions > The Binomial Distribution - Quiz

■ Bookmark

Question 1

(1/1 point)

True or false: The binomial distribution describes the number of successes in n trials where in each trial several outcomes, each of which are equally likely.

a. True

🏿 b. False 🗸

EXPLANATION

This is false. The binomial distribution describes the number of successes in n trials where in each of the trials there is a binary outcome (usually classified as "success" or "failure"). Furthermore, the "success" and "failure" outcomes are not required to be equally likely. In the Steph Curry example given in class, the outcome of each three-point attempt is either that he makes the three-point shot (success) or does not make the three-point shot attempt (failure). It is not assumed that making or missing each shot is equally likely.

Exit Survey

You have used 1 of 1 submissions

Question 2

(1/1 point)

Let's do an example similar to the one described in class. Suppose that you will take 3 penalty kicks in a row. The likelihood of making each penalty kick is $\frac{3}{4}$ or 75%. What is the probability that you will score 2 (and only 2) of the 3 penalty kicks?

- a. 0.42 or 42%
- b. 0.56 or 56%
- oc. 0.75 or 75%
- od. 0.84 or 84%

EXPLANATION

Using the binomial distribution equation,

$$p(2 \text{ out of } 3) = \binom{n}{x} p^x (1-p)^{(n-x)}$$

$$p(2 \ out \ of \ 3) = {3 \choose 2} 0.75^2 (1 - 0.75)^{(3-2)}$$

$$p(2 \ out \ of \ 3) = 0.42 \ or \ 42\%$$

You have used 1 of 2 submissions

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