edX   **MITx: 14.310x Data Analysis for Social Scientists**   Help

🔖
Bookmarks

Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions > Fundamentals of Probability > Office Arrangements and Pizza Toppings - Quiz

🔖 **Bookmark**

▾ **Module 1: The Basics of R and Introduction to the Course**

Welcome to the Course

Introduction to R

Introductory Lecture
Finger Exercises due Oct 03, 2016 at 05:00 IST 🖉

Module 1: Homework
Homework due Sep 26, 2016 at 05:00 IST 🖉

▸ **Entrance Survey**

▸ **Module 2: Fundamentals of Probability, Random Variables, Distributions, and Joint Distributions**

▸ **Exit Survey**

Question 1

(1/1 point)
In the example given in class, there are 40 faculty members that will be assigned to different offices. There are _____ possible combinations, because this is similar to _____.

○ a. 40 ; sampling without replacement

○ b. 40 ^ 2 ; sampling with replacement

○ c. 40! ; sampling with replacement

◉ d. 40! ; sampling without replacement ✔

EXPLANATION

In the example discussed in class, there are 40! (40-factorial) possible combinations of office arrangements. For the first faculty member to be assigned an office, there are 40 different possible office assignments. Once the first faculty member has been assigned, one office is filled, and there

are 39 possible office assignments remaining, and so on. So, this can be represented as 40! since this case is analogous to sampling without replacement.

You have used 1 of 2 submissions

Question 2

(1/1 point)

Suppose that you and a friend are deciding to watch 2 movies one evening. You have 10 movie options. 3 of these are action movies, and 7 are comedies. You and your friend plan to randomly select two of the movies. How many possible outcomes are there if the order you watch them in does not matter?

○ a. 10^2

◉ b. 45 ✔

○ c. 10!

○ d. 180

EXPLANATION

There are 45 possible pairings of movies. Using the combination rule discussed in class, we can define the sample space as 10 choose 2. In this example, the number of possible combinations is represented by N!/((N-n)!n!) = 10!/(8!2!) = 45.

You have used 1 of 2 submissions

Question 3

(1/1 point)

Using the same movie example as before, how many possible outcomes are there where you and your friend end up watching two comedies?

○ a. 2^2

○ b. 2!

○ c. 42

◉ d. 21 ✔

EXPLANATION

There are (7 x 6)/2 = 21 outcomes where you and your friend end up watching 2 comedies.

You have used 1 of 2 submissions

Question 4

(1/1 point)
Using the information above, what is the probability that you and your friend will watch two comedies if you're choosing randomly among the 10 movies?

- ○ a. 2/10

- ○ b. 7/10

- ○ c. 42/45

- ● d. 21/45 ✔

EXPLANATION

The probability that you will watch two comedies is 21 / 45 = ~47%.

You have used 1 of 2 submissions

POWERED BY
OPENedX