Rectangle sampling activity

HON Stat 251

Random Rectangles Activity

Materials needed

+ Instructions.pdf
+ Random rectanges.pdf
+ RNG.pdf
+ Renae's example.pdf (my example is choosing different size samples)

The goal is to choose a sample of 10 rectangles from which to estimate the mean area of the 100 rectangles. On the provided diagram, each rectangle is labeled 0-99 (00-99) and each square of each rectangle is considered one unit. For example, rectangle number 99 has 3 squares, thus its area is 3 units.

(1) Look at the file called 'random rectangles.pdf'. Without looking too closely, quickly choose 10 that you *think* represent the average area of all of the rectangles on the provided file posted on the HON class website. This first sample is called your *judgment sample*.

(2) Find the area of each of your judgment rectangles.

(3) Find the mean and standard deviation of your rectangle areas..

(4) Now you will use the random digit table (RNG file on HON website) to choose a proper random sample of 10 rectangles. To use the random digit table, you can choose any row and column as a starting place. You will need to go by 2 digits at a time since your rectangles are labeled from 0-99 (or 00-99). Each set of 3 digits is a value for choosing an element of your sample. For more information, please see `Renae's rectangle activity`(file on HON website). If you use it to help you, you *cannot* use the same random numbers that I did; I will be using a different set than what you are given. Use the random digit table to choose a *random* sample of 10 rectangles.

(5) Repeat steps 2 and 3 with the random sample of rectangles (so that you have one judgment sample and one random sample of 10 each)

(6) Think of why your samples are somewhat different. If they are pretty similar, why might that have happened? Which method do you think is better if the goal is to use the sample mean to estimate the population mean?

(7) When you complete the samples and calculations, summarize your results in a document and email (yes, I did say email) the document to me at renaes@uidaho.edu. Formatting should look similar to my example (`Renae's rectangle activity`).