

STAT 221 Introduction to Probability and Statistics Winter 2012

Quiz 3

Taken on Fri Jan 6. You may work with a group of as many as four students, submitting one quiz with all names, provided that you all contribute to the work. You may use your notes.

1. Explain why we could use a coin for the simulation analysis with the Sarah-the-chimpanzee study but not with the rock-paper-scissors study.
2. Even though I chose scissors less than $1/3$ of the time (namely, 2 times when I played 12 rounds), we decided that this did *not* provide strong evidence that I would select scissors less than $1/3$ of the time in the long run. Explain the reasoning behind this conclusion.

For questions 3-5, reconsider the Sarah-the-chimpanzee study, where Sarah chose the correct photo for 7 out of 8 problem scenarios.

3. State what the null and alternative hypotheses are for this study.
4. Use the appropriate computer applet, with 1000 repetitions, to approximate the p-value for this study. Identify which applet you use, state the input values that you use for the applet, and report the approximate p-value that you obtain.
5. Choose the best from among the following options for drawing and justifying a conclusion from this p-value.
 - A. Because the p-value is *small*, the data *provide* strong evidence that Sarah does have some ability to identify the problem-solving photo.
 - B. Because the p-value is *small*, the data *do not* provide strong evidence that Sarah does have some ability to identify the problem-solving photo.
 - C. Because the p-value is *not small*, the data *provide* strong evidence that Sarah does have some ability to identify the problem-solving photo.
 - D. Because the p-value is *not small*, the data *do not* provide strong evidence that Sarah does have some ability to identify the problem-solving photo.