

Your Name: _____

Names of people you worked with: _____

Instructions: Work on this problem in class with your group (if you are attending class synchronously) or out of class (hopefully with a person or two! if you are attending class asynchronously). The problem should be done on a piece of paper with a pencil or on some kind of tablet. The problem should **not** be typed up or done in LaTeX.

Work for a *maximum* of 15 minutes on the problem (regardless of what time you are working). *Do not* come back to the problem to “fix it up” or “finish it.” Be sure to write down the names of the people you worked with during class (or outside of class).

Take a picture of your work and use a scanning app to create a pdf (or create a pdf directly from your tablet). Upload your work to Gradescope (via Sakai) within 24 hours of class.

Task: Helping smokers to quit is a very important and challenging public health goal. In a study of the effectiveness of a nicotine lozenge, smokers who wanted to quit were randomly assigned to one of two groups: one group received nicotine lozenges and the other group received placebo lozenges. At the end of the 52-week study, 17.9% of the 459 subjects in the nicotine group had successfully abstained from smoking, compared to 9.6% of the 458 subjects in the placebo group.¹

Use the applet at <http://www.rossmanchance.com/applets/2021/chisqshuffle/ChiSqShuffle.htm> with the data above (click on “Enter data (2x2:)”).

1. What are the observational units and variables in this study?
2. How many times more likely was a smoker who received the nicotine lozenge to quit, as compared to a smoker who received a placebo lozenge?
3. Provide a p-value and a one-sentence conclusion for the study (based on the randomization test from the applet).

¹Example from Allan Rossman, <https://askgoodquestions.blog/2021/02/01/83-better-but-not-good/>, original study by Shiffman et al. 2002, <https://pubmed.ncbi.nlm.nih.gov/12038945/>