Quiz 4: Statistical significance
(taken on Tues Jan 17)

You may work with in a group of as many as three students on this quiz, handing in one quiz with all names, provided that you all contribute to the work. You may use your notes.

Recall that I asked each of you to look at two faces and then make a choice between Bob and Tim for the name of the person whose face is on the left. The results were that 38 of 42 students made the correct identification of Tim with the face on the left. Performing a simulation analysis on these data results in the following graph:

1. Which of the following was the assumption behind this simulation analysis?
   A. That people do have a tendency to match the name Tim with the face on the left
   B. That people have no such tendency and so randomly match the names to faces

2. The graph above was based on 10,000 repetitions of tossing a coin how many times?

3. Describe how you would determine an approximate p-value for this study based on the graph of simulation results above.

4. Which of the following best summarizes the reasoning and conclusion from this analysis?
   A. The p-value is very small, so the data provide strong evidence that people have a tendency to match the name Tim with the face on the left.
   B. The p-value is very small, so the data provide little or no evidence that people have a tendency to match the name Tim with the face on the left.
   C. The p-value is not very small, so the data provide strong evidence that people have a tendency to match the name Tim with the face on the left.
   D. The p-value is not very small, so the data provide little or no evidence that people have a tendency to match the name Tim with the face on the left.

5. Suppose that our class results had produced 28 (rather than 38) of 42 students matching the name Tim with the face on the left. Which of the following describes how your conclusion would have changed?
   A. The p-value would have been smaller, so the data would have provided stronger evidence that people have a tendency to match the name Tim with the face on the left.
B. The p-value would have been **smaller**, so the data would have provided **less strong** evidence that people have a tendency to match the name Tim with the face on the left.

C. The p-value would have been **larger**, so the data would have provided **stronger** evidence that people have a tendency to match the name Tim with the face on the left.

D. The p-value would have been **larger**, so the data would have provided **less strong** evidence that people have a tendency to match the name Tim with the face on the left.