MA 386 - Statistical Programming
Portfolio: Randomization

Background:
In 2007, Ross Valley residents voted on a flood tax; an article discussing some aspects of this vote is available online:

`http://www.marinij.com/general-news/20070724/unsigned-ballots-rejected-ross-valley-flood-fee`

In brief, ballots were mailed to 15,010 property owners in an area of California known as Ross Valley. A total of 8,059 ballots were returned. Residents casting their vote were required to sign the ballot (which was unusual) in order for it to be counted. Of the ballots returned, 1,672 were **not** signed and therefore disqualified, and another 36 were disqualified for other reasons. Of the signed votes, the tax passed by a very narrow margin: 3,208 in favor of the tax and 3,143 opposed to the tax.

Some critics of the tax claimed the ballots were confusing; they pointed to the fact that the instructions for casting the vote were placed on one side of the ballot while the requirement to sign the ballot was stated on the reverse side. Adding to the controversy, a count of the 1672 discounted votes revealed that 730 were in favor of the tax while 942 were against the tax (that is, had these been included, the tax would not have passed).

Critics of the tax are trying to build a case for the tax to be overturned as a result of tampering with the voting process. As a part of their investigation, a local journalist reached out to a colleague with the following question: Assuming there is no reason why the unsigned ballots would be more likely "yes" or "no" than the signed ballots, what is the probability of this large of a split in the unsigned votes?

Instructions:
Write a response to the journalist. In particular, the journalist is interested in whether the data suggest that the votes that were disqualified are somehow systematically different from those that were counted in the official tally? Or, is the split observed in the disqualified votes consistent with what we might expect if whether a person signs the ballot is purely chance?