

HOMEWORK 9, STAT 5352

1. The Kenton Food company wished to test four different package designs for a new breakfast cereal. Twenty stores, with approximately equal sales volumes, were selected as the experimental units. Each store was randomly assigned one of the package designs, with each package assigned to five stores. A fire occurred in one store during the study period, so this store had to be dropped from the study. Hence, one of the designs was tested in only 4 stores. The stores were chosen to be comparable in location and sale volume. Other relevant conditions that could affect sales, such as price, amount and location of shelf space, and special promotional efforts, were kept the same for all stores in the experiment. Sales, in number of cases, were observed for the study period, and the results are recorded as follows.

Package Design #1: 11, 17, 16, 14, 15.

Package Design #2: 12, 10, 15, 19, 11.

Package Design #3: 23, 20, 18, 17, (fire)

Package Design #4: 27, 33, 22, 26, 28

Analyze the data and solve the hypothesis testing problem about equivalence of the package designs. Use $\alpha = .05$.