MTH 245, Quiz #11, Spring 2023   Name _____

Instructions: Show all work. Answers without work can only be graded all or nothing. Partial credit is available only when work is shown. Answer all parts of each problem. Provide explanations as indicated. You may use Excel to complete any required statistical calculations or graphs. Submit any Excel work with assignment. Do not say "see Excel" for answers, but write or paste them into this document. Exact answers are preferred unless specifically asked to round.

1. Using the data in the file **245quiz11data.xlsx**, conduct a χ^2-test (using the data on Sheet 1) to determine if Age (Category 1 = Young, Category 2 = Middle-aged, Category 3 = Old) and Region are dependent. State the null and alternative hypotheses, test statistic, p-value and conclusion. (Hint: Make a two-way table of the data first.)

2. Using the data in the same file on Sheet 2, conduct an ANOVA test to determine if customer size impacts the number of days to complete their order. State the null and alternative hypotheses, test statistic, p-value and conclusion. (Hint: Separate your data into separate columns by category.) Make a comparative boxplot of the data. Does your analysis appear to agree with the graph?