MT 143, Quiz #11, Spring 2020 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 Minitab or any other statistical software (such as a calculator or Excel) to complete any required statistical calculations or graphs.

1. Using the data in the file **143quiz11data.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.

H_0: the variables age and region are independent
H_a: the variables age and region are dependent

Chi-Square Test

	Chi-Square	DF	P-Value
Pearson	11.876	6	0.065
Likelihood Ratio	12.043	6	0.061

There is not sufficient evidence to support the claim that the variables are dependent.

2. Using the data in the file **143quiz11data.xlsx**, conduct an ANOVA test (using the data on Sheet 2) 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.

H_0: all means are the same
H_a: at least one mean is different

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Customer Size	2	77.24	38.62	1.16	0.318
Error	88	2929.04	33.28		
Total	90	3006.29			

There is not sufficient evidence to support the claim that the means are different.