

Instructions: This quiz is to be completed entirely in class. You may not use cell phones, and you may only access internet resources you are specifically directed to use. Go to Blackboard and open the data file posted under Quiz #2. Use it to answer the following questions. Place your answers to the bolded questions directly on this page. (If you do not answer questions on this page, they will not be graded.)

1. Use the data in the **310quiz2data.xlsx** file to conduct a one-way ANOVA test. The data provides quarterly sales under three different sales compensation schemes. Do the three schemes produce the same or different sales results? **State the hypotheses, and the test-statistic and P-value. Interpret the results clearly in a sentence in context.**

H_0 : all means equal $\mu_1 = \mu_2 = \mu_3$
 H_a : at least one not equal

$$F = 2.509$$

$$P\text{-value} = 0.087$$

fail to reject H_0

There is not enough evidence to conclude means are different.

2. Use the data in the **310quiz2data.xlsx** file to create a scatterplot of stock price vs. return average equity, and find an appropriate regression equation for the data, along with the R^2 value. **State the equation and the R^2 value. How strong is the relationship between the two variables?**

Stock price (x)

$$Y = 0.071X + 12.249$$

$$R^2 = 0.0318$$

stock price (y)

$$Y = 0.4474X + 17.636$$

$$R^2 = 0.0318$$

extremely weak

3. Use the same data to find a multiple regression equation to predict stock price from average equity and annual dividend rate. **Report a confidence interval for the slopes of both variables and the adjusted R^2 value.**

$$\text{Adjusted } R^2 = 0.9174$$

Average Return Equity (0.073, 0.879)

Annual Dividend Rate (9.299, 13.089)

4. Using the same data, construct a residual plot of the data. **Do the residuals satisfy the equal variance assumption?**

yes, they appear to be random w/ no patterns