

Name: _____

Use JMP to answer the following questions. Instructions for how to find the relevant values in JMP are included in Chapter 4 of your Lecture Guide.

1. A company wishes to study the relationship between sales volume and the amount of money spent on advertisements. The following data are collected.

Advertising (thousand dollars)	Sales Volume (thousand dollars)
100	400
200	550
300	800
400	1200

- (a) Identify the **explanatory** and **response** variables.
- (b) Find and interpret the **correlation coefficient** in context of the problem.
- (c) Using **Table II** in Chapter 4 of your Lecture Guide, determine whether there is a linear relationship between the two variables.
- (d) What is the least-squares **regression equation**?
- (e) Interpret the **slope** of the regression equation.
- (f) Does the **y-intercept** of the regression equation have a valid interpretation in this context? If so, interpret it. If not, explain why.
- (g) Find the **predicted** sales volume when \$400,000 are spent on advertising.
- (h) Find the **residual** for when \$400,000 are spent on advertising.

2. An economist wants to determine the relationship between one's FICO score (a measure of credit score) and the interest rate of a 36-month auto loan. The data in the table below represent the interest rate (in percent) that a bank might offer on a 36-month auto loan for a sample of various FICO score.

FICO Score	545	595	640	675	705	750
Interest Rate (%)	18.982	17.967	12.218	8.612	6.680	5.150

- (a) Identify the **explanatory** and **response** variables.
- (b) Find and interpret the **correlation coefficient** in context of the problem.
- (c) Using **Table II** in Chapter 4 of your Lecture Guide, determine whether there is a linear relationship between the two variables.
- (d) What is the least-squares **regression equation**? Round values to three decimal places.
- (e) Interpret the **slope** of the regression equation.
- (f) Does the **y-intercept** of the regression equation have a valid interpretation in this context? If so, interpret it. If not, explain why.
- (g) Find the **predicted** sales volume for someone with a FICO score of 640.
- (h) Find the **residual** for someone with a FICO score of 640.