**Scatter Plots, Correlation, and Causation**

**Scatter Plot**:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Example:** This scatterplot describes the relationship between minutes studying and score on a test. *As the time spent studying increases, the test scores increase.*

*Graph the points and answer the question.*

What would you predict is the test score for someone who spends 10 minutes studying?



Correlation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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We can measure correlation coefficient, or the R-value. The correlation coefficient is always between -1 and 1, and tells us how close the scatter plot is forming a straight line.



“**Correlation** does \_\_\_\_\_\_\_\_\_\_imply \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_””, is a common phrase in stats. It means correlation is not causation. Just because there is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, it does not mean it is the cause.

Estimate the Correlation Coefficent? \_\_\_\_\_\_\_\_\_\_\_\_

Is there Causation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples of Correlation or Causation?

1. The age of a child and their shoe size.

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1. The number of cars on the road and the number of accidents reported.

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1. The number of salles made and the amount of commission earned.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. A child’s weight and the size of her vocabulary.

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1. The number of miles drive and the amount of gas used.

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