MTH 125 Name: Madison Meyer

Lab 10 – Regression Analysis Group Members:

Highway Deaths and Speed Limits

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| Country | Death Rate  (per 100 million veh. Miles) | Speed Limit  (in mile per hour) |
| Norway | 3.0 | 55 |
| United States | 3.3 | 55 |
| Finland | 3.4 | 55 |
| Britain | 3.5 | 70 |
| Denmark | 4.1 | 55 |
| Canada | 4.3 | 60 |
| Japan | 4.7 | 55 |
| Australia | 4.9 | 60 |
| Netherlands | 5.1 | 60 |
| Italy | 6.1 | 75 |

5. For the above data set

* 1. Which variable is the independent variable? Construct a scatterplot of the above data.
  2. State the hypothesis.
  3. Calculate the correlation coefficient and test it at
  4. If appropriate, calculate the regression line and graph the line on the scatterplot

1. This data was collected in 1986 when the U.S. had a speed limit of 55 mph because it was felt that lower speed limits reduce the highway death rate. The maximum speed limit has been raised to 70 mph or even 75 mph in some states. The reasoning was that lower speed limits did not significantly reduce the highway death rate. **Based on the regression analysis** do you agree with this statement? Explain your answer. Support it with data.
2. The table gives the distance from Boston to each city (in thousands of miles) and gives the time for one randomly chosen commercial airline to make the flight.

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| --- | --- | --- |
| City | Distance (1000s of miles) | Time (Hours) |
| St. Louis | 1.141 | 2.83 |
| Los Angeles | 2.979 | 6.00 |
| Paris | 3.346 | 7.25 |
| Denver | 1.748 | 4.25 |
| Salt Lake City | 2.343 | 5.00 |
| Houston | 1.804 | 4.25 |
| New York | 0.218 | 1.25 |

1. Which is the independent variable? Construct a scatterplot for the data.
2. State the hypothesis.
3. Calculate and test the correlation coefficient for
4. If appropriate, write the line of regression and graph the line on the scatterplot.
5. Explain specifically what the slope means in the context of this problem.
6. Predict the time it will take for a flight from Boston to Seattle (3000 miles).