

Sample Quiz #4 - solutions

1. A researcher investigating the association between two variables collected some data and was surprised when he calculated the correlation. He had expected to find a fairly strong association, yet the correlation was near zero. Explain to him how the scatterplot could still reveal the strong association he anticipated.
2. Here is data on the amounts of fat and calories in fast food hamburgers.
 - a) What is the explanatory variable and what is the response?
 - b) Analyze the association and compute the correlation coefficient if appropriate.

Fat	19	31	34	35	39	39	43
Calories	410	580	590	570	640	680	660

Solutions:

1. A scatterplot can reveal a very strong association, but if it is not linear the correlation coefficient is not an indicator of strength. The correlation only measures the strength of a linear association.
2. a) We are trying to see if the amount of calories in hamburgers is determined by the amount of fat. Therefore, the amount of fat is the explanatory variable and calories if the response.

Below is the scatterplot performed in Minitab. The plot reveals a fairly strong linear association. As expected, as the amount of fat increases so do the calories (meaning that the direction of the plot is positive).

