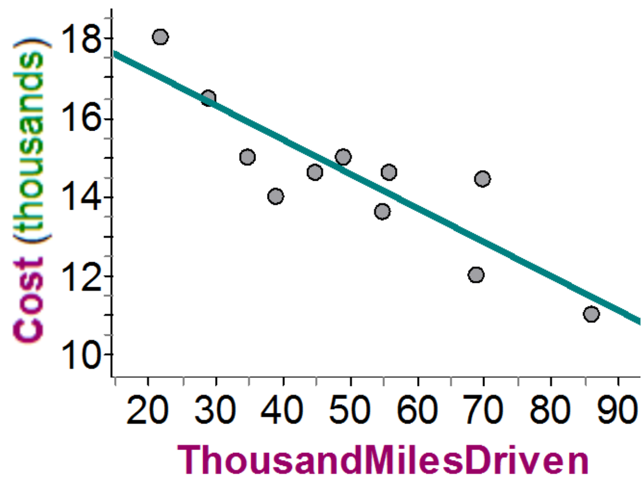
Mrs. Daniel- AP Stats
3.2 WS

1. The following data shows the number of miles driven and advertised price for 11 used Honda CR-Vs from the 2005-2009 model years (prices found at www.carmax.com). The scatterplot below shows a strong, negative linear association between number of miles and advertised cost. The line on the plot is the regression line for predicting advertised price based on number of miles.

Thousand Miles Driven	**Cost (dollars)**
22	17998
29	16450
35	14998
39	13998
45	14599
49	14988
55	13599
56	14599
69	11998
70	14450
86	10998



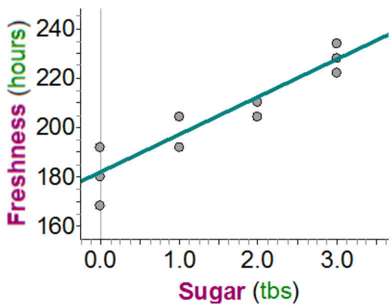
A. Calculate the correlation. What does this value mean in plain English? What is the relative strength of the association?

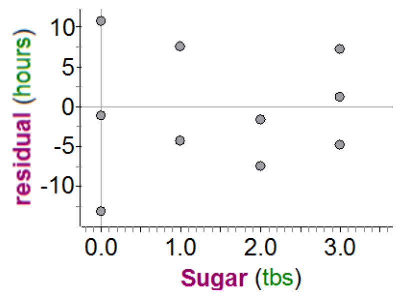
B. What is the least squares regression equation for this association? Define any variables used.

C. Determine the y-intercept of the regression equation and interpret the value in context. Does the value have any real-world implications?

D. Determine the slope of the regression equation and interpret the value in context. Does the value have any real-world implications?

2. For a project, two AP Statistics students decided to investigate the effect of sugar on the life of cut flowers. They went to the local grocery store and randomly selected 12 carnations. All the carnations seemed equally healthy when they were selected. When they got home, the students prepared 12 identical vases with exactly the same amount of water in each vase. They put 1 tablespoon of sugar in three vases, 2 tablespoons of sugar in three vases, and 3 tablespoons of sugar in three vases. In the remaining 3 vases, they put no sugar. After the vases were prepared and placed in the same location, the students randomly assigned one flower to each vase and observed how many hours each flower continued to look fresh. A scatterplot, residual plot, and computer output from the regression are shown. Only 10 points appear on the scatterplot and residual plot since there were two observations at (1, 204) and two observations at (2, 210).



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Predictor      Coef   SE Coef      T      P
Constant    181.200     3.635  49.84  0.000
Sugar        15.200     1.943   7.82  0.000


S = 7.52596    R-Sq = 86.0%    R-Sq(adj) = 84.5%
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A. What is the equation of the least-squares line? Be sure to define any variables you use.

B. Is a line an appropriate model for these data? Justify your answer. (You need at least two sentences.)

C. Interpret the value of "s" in the context of this problem.

D. Interpret the value of r^2 in the context of this problem.