HW9: Used car prices? (assigned on Tues Dec 2; due on Thur Dec 4)
You may work with in a group of as many as three students on this assignment, handing in one report with all names, provided that you all contribute to the work. Word-processed reports are preferred to hand-written ones. Integrate computer output into your report as appropriate.

The data in the file UsedHondaCivics.mtw, available from our course website, come from a sample of used Honda Civics listed for sale online in July 2006. The variables recorded are the car’s year of manufacture, age (calculated as 2006 minus year of manufacture), mileage, and price.

a) Determine the least squares line for predicting price from age, and submit a scatterplot with the least squares line superimposed.

b) Report the proportion of variability in car prices that is explained by the line with the car’s age.

c) Report the value of the slope coefficient, and interpret what this reveals.

d) Use the least squares line to predict the price of a 4-year-old used Honda Civic.

e) Conduct a test of whether the sample data provide strong evidence of a linear relationship in the population between price and age. Include all components of the test (hypotheses, test statistic, and p-value), and summarize your conclusion.

f) Determine a 95% confidence interval for the population slope coefficient, and interpret what this parameter and interval represent.

g) Produce a 95% confidence interval for the average price of a 4-year-old car in the population of all used Honda Civics for sale online.

h) Produce a 95% prediction interval for the price of a 4-year-old car and for the price of a 10-year-old car.

i) Comment on how the interval in g) compares to the interval in h) for the 4-year-old car. (Be sure to mention midpoints as well as widths.) Explain why it makes sense that they compare as they do.

j) Comment on how the prediction intervals in h) compare to each other. (Be sure to mention midpoints as well as widths.) Explain why it makes sense that they compare as they do.