

- b) Give an interpretation of the estimate of the slope coefficient within the context of the problem.
 - c) Calculate the estimate of the y-intercept for the line of best fit.
 - d) Why is it inappropriate to give an interpretation of the estimate of the y-intercept given the context of the problem?
 - e) Give the prediction equation for predicting global temperature from CO₂ concentration.
 - f) In August 2008, the CO₂ concentration was 386 ppmv. Using the prediction equation in e), predict the average global temperature.
 - g) How does your prediction compare to the actual average global temperature of 14.54 C?
 - h) According to these data, is the increase in CO₂ causing the increase in average global temperature? Explain briefly.
3. On homework 4 you used JMP to look at the relationship between the horsepower and city mpg for a sample of 57 cars selected from the 2004 model year. In this exercise we will look at using horsepower to predict the city mpg for those cars. Remember horsepower is the explanatory variable and city mpg is the response. You can find the JMP data table on the course website.

Use Analyze – Fit Y by X – Fit Line to find the line of best fit between horsepower and city mpg. From the pull down menu next to city mpg, select Plot Residuals. Use the JMP output to answer the following questions. Be sure to turn in a copy of the JMP output with your assignment.

- a) Give the prediction equation for predicting city mpg given the horsepower of the car.
- b) Give an interpretation of the estimated slope coefficient within the context of the problem.
- c) Predict the city mpg for a Toyota Camry with a 210 horsepower engine. What is the residual for this car?
- d) Give the value of R^2 and an interpretation of this value within the context of the problem.
- e) What is the value of the correlation coefficient?
- f) Give the value of s_e . Give an interpretation of this value within the context of the problem.
- g) Describe the plot of residuals versus horsepower. What does this plot indicate about the appropriateness of the linear model relating horsepower and city mpg?