Student Learning Guide

Comparing and Contrasting
Year vs. Mileage and Age vs. Mileage

1. What was the equation of the least squares regression line you found in "Year vs. Mileage" graph?

2. What was the equation of the least squares regression line you found in Age vs. Mileage Graph?

3. What similarities and differences do you note in the two equations?

4. What was the slope of the equation in "Year vs. Mileage" Graph?

5. What was the slope of the equation in "Age vs. Mileage" Graph?

6. What relationship exists between the slopes of the two equations you found? Why does this happen?

7. What was the *y*-intercept in the equation you found for "Year vs. Mileage" Graph?

8. What was the *y*-intercept in the equation you found for "Age vs. Mileage" Graph?

9. Why is there such a difference in the two *y*-intercepts?

10. What was the correlation coefficient for the equation in "Year vs. Mileage" Graph?

11. What was the correlation coefficient for the equation in "Age vs. Mileage" Graph?

12. Why do the two correlation coefficients have the similarity they have? Why do they have the difference they do?

13. The warranty on many new cars is 3 years or 36,000 miles. According to your equations, does this make sense? Why or why not?

14. Many people lease automobiles. The standard mileage allowance for many small to mid-size cars is 15,000 miles per year. When the automobile is returned at the end of the lease period, the customer has to pay for any miles beyond those listed in the lease agreement. At the time the automobile is leased, the customer is given the opportunity to buy more miles per year if (s)he feels they might be necessary. By buying the miles at the time the automobile is leased, the customer can spread the cost of the miles out over the period of the lease. When the car is returned at the end of the lease agreement, if the customer did not use all the extra purchased miles, the company will repay the customer for the extra miles. According to your calculations, if you were leasing a new automobile, would you purchase more miles per year? If so, how many? If not, why not?

15. Which of the two graphs and equations did you find the easiest to use? Why?