The manager of Collins Import Autos believes the number of cars sold in a day (Q) depends on two factors: (1) the number of hours the dealership is open (H) and (2) the number of salespersons working that day (S). After collecting data for two months (53 days), the manager estimates the following log-linear model: Q= aHbSc

1. Explain how to transform this log-linear model into a linear form that can be estimated using multiple regression analysis.

The computer output for the multiple regression analysis is shown below:

Dependent Variable: LNQ R Sqaure F Ratio P-Value on F

Observations: 53 0.5452 29.97 0.0001

Variable Parameter Standard  
 Estimate Error T-Ratio P-Value

Intercept 0.9162 0.2413 3.80 0.0004

LNH 0.3517 0.1021 3.44 0.0012

LNS 0.2550 0.0785 3.25 0.0021

b). How do you interpret coefficients b and c.? If the dealership increases the number of salespersons by 20 percent, what will be the percentage increase in daily sales?

c.) Test the overall model for statistical significance at the 5 percent significance level.

d.) what percent of the total variation in daily auto sales is explained by this equation? What could you suggest to increase this percentage?

e.) Test the intercept for statistical significance at the 5 percent level of significance. If H and S both equal 0, are sales expected to be 0? Explain why or why not.

f. Test the estimated coefficient b for statistical significance. If the dealership decreases its hours of operation by 10 percent, what is the expected impact on daily sales?