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37.   **a)**1.109. For each 1-mpg increase in city mileage, the predicted highway mileage will increase by 1.109.

b) 4.62 mpg. This would represent the highway mileage for a car that gets 0 mpg in the city, which is impossible.

c) 22.36 mpg.

39.   **a)** -0.0053. For each additional week in the study, the predicted pH decreased by 0.0053 units.

b) 5.43. The predicted pH level at the beginning of the study (weeks = 0) is 5.43.

c) 4.635

41.   No. 1000 months is well outside the observed time period and we can't be sure that the linear relationship continues after 150 weeks.

45.   Residual = 5.08 – 5.165 = -0.085
The actual pH value for that week was 0.085 less than predicted.

46.   Residual = 490 – 503.032 = -13.032
The actual amount of gas consumed was 13.032 cubic feet less than predicted in the month of March.