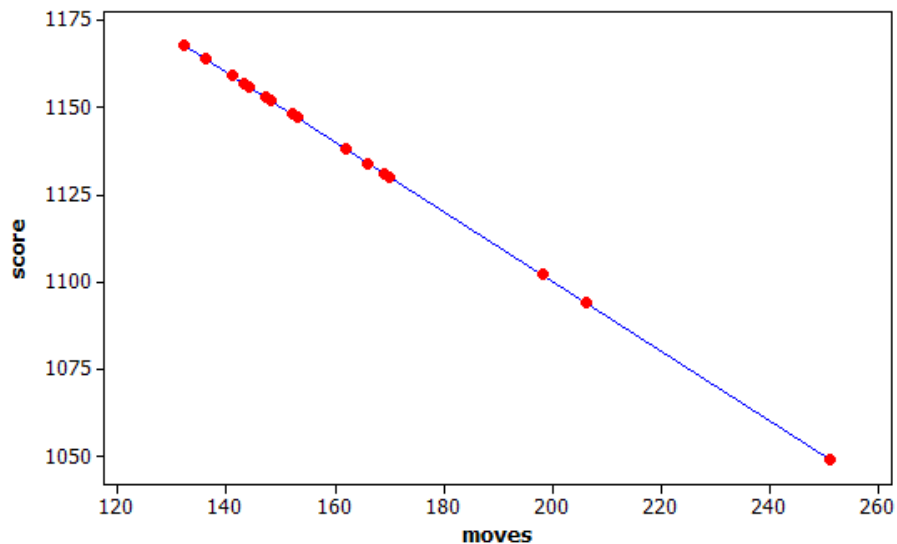


Name \_\_\_\_\_

Date \_\_\_\_\_

1. Many computers come with a “solitaire” card game. The player moves cards in certain ways to complete specific patterns. The goal is to finish the game in the shortest number of moves possible, and a player’s score is determined by the number of moves. A statistics teacher played the game 16 times and after each game recorded the number of moves and the final score. The line represents the linear function that is used to determine the score from the number of moves.



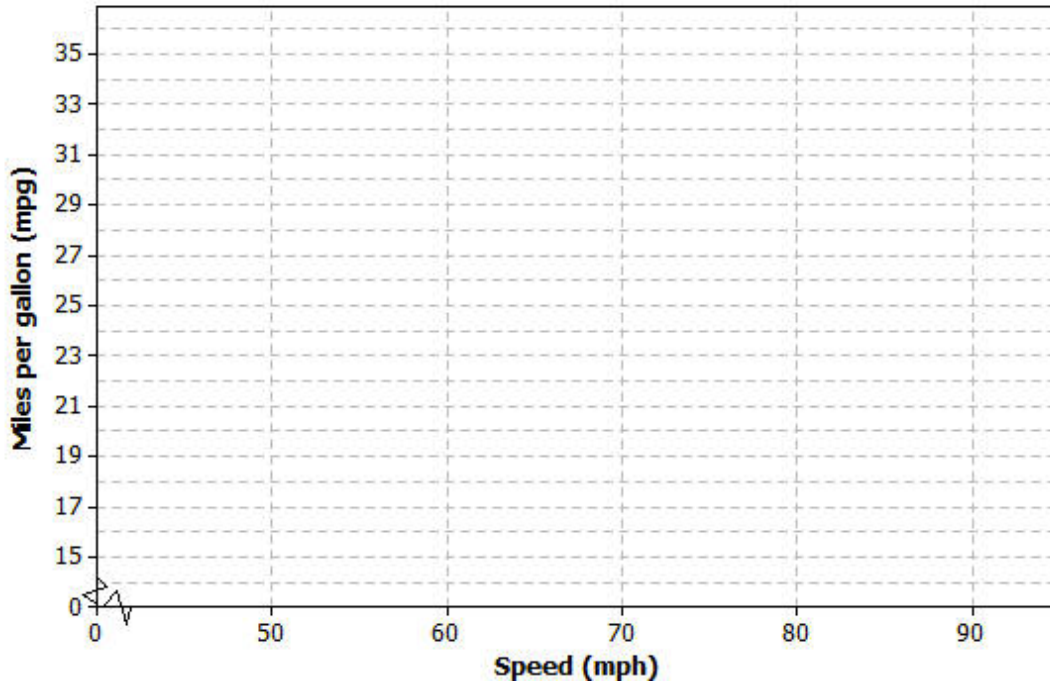
- a. Was this person’s average score closer to 1130 or 1110? Explain how you decided.
- b. The first two games she played took 169 moves (1131 points) and 153 moves (1147 points). Based on this information, determine the equation of the linear function used by the computer to calculate the score from the number of moves. Explain your work.

- c. Based on the linear function, each time the player makes a move, how many points does he or she lose?
- d. Based on the linear function, how many points does the player start with in this game? Explain your reasoning.
2. To save money, drivers often try to increase their mileage, which is measured in miles per gallon (mpg). One theory is that speed traveled impacts miles per gallon. Suppose the following data are recorded for five different 300-mile tests, with the car traveling at different speeds in miles per hour (mph) for each test.

Speed (mph)	Miles per gallon (mpg)
50	32
60	29
70	24
80	20
90	17

- a. For the data in this table, is the association positive or negative? Explain how you decided.

- b. Construct a scatter plot of these data using the following coordinate grid. The vertical axis represents the miles per gallon (mpg) and the horizontal axis represents the speed in miles per hour (mph).



- c. Draw a line on your scatter plot that you think is a reasonable model for predicting the miles per gallon from the car speed.
- d. Estimate and interpret the slope of the line you found in part (c).

Suppose additional data were measured for three more tests. These results have been added to the previous tests and the combined data are shown in the table below.

Speed (mph)	Miles per gallon (mpg)
20	25
30	27
40	30
50	32
60	29
70	24
80	20
90	17

- e. Does the association for these data appear to be linear? Why or why not?
- f. If your only concern was miles per gallon and you had no traffic constraints, what speed would you recommend traveling based on these data? Explain your choice.