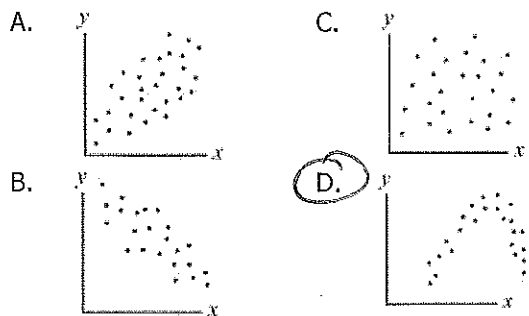


**8.SP.1** Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, or non-linear associations

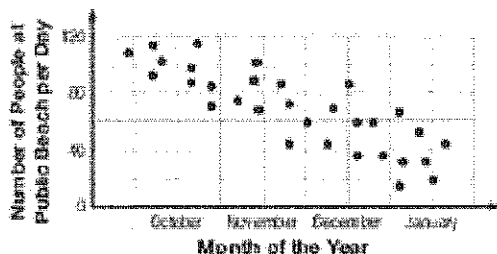
For which of the following data sets would you expect a positive association?

- A. The amount of free time you have and the hours of homework you have.
- B. The sales of snow shovels and the amount of snowfall.
- C. The length of a baby at birth and the month in which the baby was born.
- D. The number of shoes you own and the size of your shoes.

Which of the scatter plots below shows a non linear association?



What kind of correlation is shown in the scatter plot below?

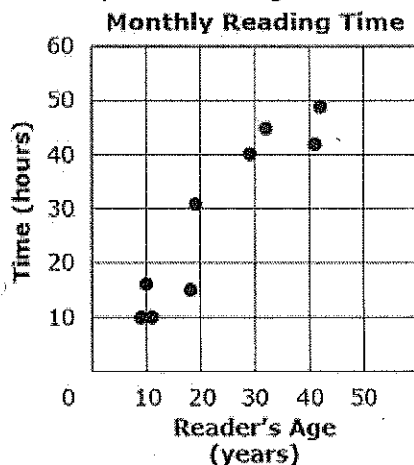


- A. Strong positive correlation
- B. Weak negative correlation
- C. No correlation
- D. Strong negative correlation

Paul creates a scatter plot with a negative association. The x-axis of the scatter plot is titled "minutes spent at the mall". Which label is most likely the title of the y-axis of Paul's scatter plot?

- A. Distance walked
- B. Money available to spend
- C. Number of movies seen
- D. Number of stores visited

The scatter plot shows the relationship between the age of a reader and the time, in hours, the reader spends reading each month.



**Part A:** What type of association (positive or negative) is shown between the age of the reader and the hours spent reading per month? Explain your answer.

The scatter plot shows a positive association because the y-values increase as the x-values increase.

**Part B:** Does the data show a linear or non linear relationship? Explain your answer.

The data shows a linear relationship because the trend is constantly increasing.

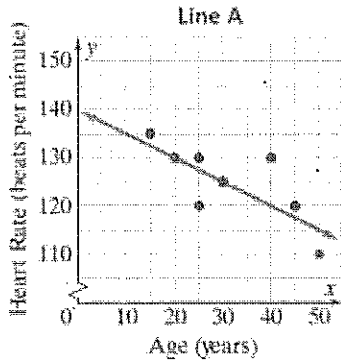
**Part C:** Write an equation to represent the data. Explain what the numbers you used in the equation represent.

$$y = \frac{5}{4}x$$

The fraction  $\frac{5}{4}$  represents the slope of the line and means that people increase the time they read by 5 hours every 4 years of their life.

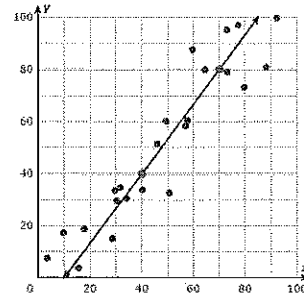
8-SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.

Choose the equation that best models the information in the graph below.



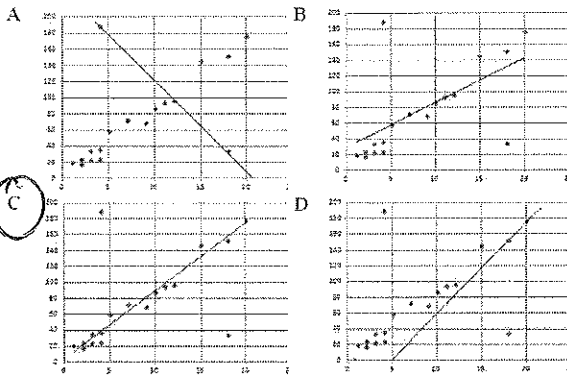
- A.  $y=140+1.5x$   
 B.  $y=140-1.5x$   
 C.  $y=140x-1.5$   
 D.  $y=140x+1.5$

What is true of the equation for the trend line shown below?

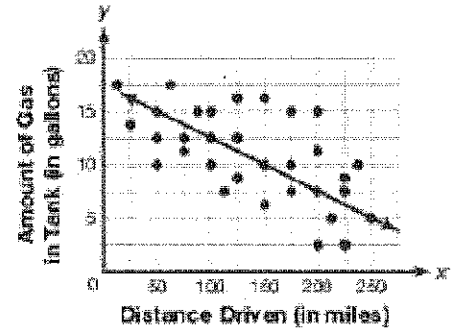


- A. It has a positive slope and a positive y intercept.  
 B. It has a positive slope and a negative y intercept.  
 C. It has a negative slope and a negative y intercept.  
 D. It has a negative slope and a positive y intercept.

Which graph shows the line of best fit for the data?

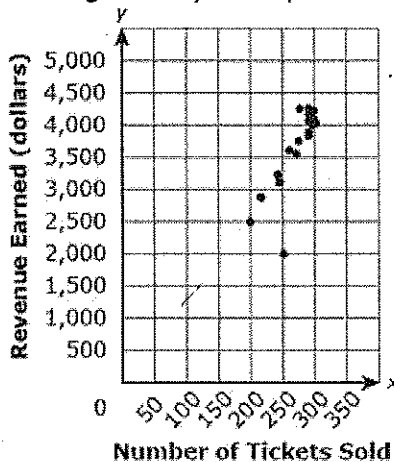


What relationship does the line of best fit show in the data?



- A. For every 50 miles driven, the tank loses 5 gallons of gas.  
 B. For every 50 miles driven, the tank loses 2.5 gallons of gas.  
 C. For every 5 miles driven, the tank loses 150 gallons of gas.  
 D. For every 25 miles driven, the tank loses 5 gallons of gas.

The scatter plot shows the relationship between the number of tickets sold for a play and the revenue earned from ticket sales for each performance. There are 2 different prices for tickets: one price for adults and a significantly lower price for children.



Part A: Are there any outliers in the scatter plot? If so, approximate the coordinates of the point of any outliers and explain why the point is considered an outlier using the information given in the problem.

Yes, the point (250, 2000) is an outlier. The revenues were much lower that performance because it likely included a greater number of child's tickets.

Part B: If you informally fit a straight line to suggest a linear association, what would likely be the amount of revenue earned for 150 tickets sold? Explain your reasoning.

Selling 150 tickets should create \$2,000 in revenue because each group of 50 tickets creates around \$1,000 of revenue.