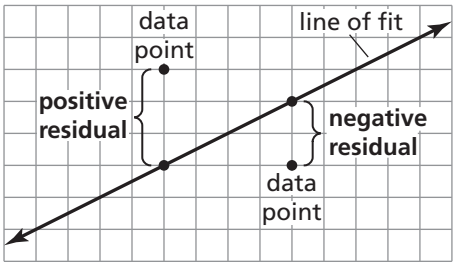
Name_____ Date _____

4.5 Notetaking with Vocabulary (continued)

Core Concepts

Residuals

A **residual** is the difference of the y-value of a data point and the corresponding y-value found using the line of fit. A residual can be positive, negative, or zero.



A scatter plot of the residuals shows how well a model fits a data set. If the model is a good fit, then the absolute values of the residuals are relatively small, and the residual points will be more or less evenly dispersed about the horizontal axis. If the model is not a good fit, then the residual points will form some type of pattern that suggests the data are not linear. Wildly scattered residual points suggest that the data might have no correlation.

Notes:

Extra Practice

In Exercises 1 and 2, use residuals to determine whether the model is a good fit for the data in the table. Explain.

1. $y = -3x + 2$

x	–4	–3	–2	–1	0	1	2	3	4
y	13	11	8	6	3	0	–4	–8	–10

Name _____ Date _____

4.5 Notetaking with Vocabulary (continued)

2. $y = -0.5x + 1$

x	0	1	2	3	4	5	6	7	8
y	2	0	–3	–5	–7	–6	–4	–3	–1

3. The table shows the number of visitors y to a particular beach for average daily temperatures x.

Average Daily Temperature (°F)	Number of Beach Visitors
80	100
82	150
83	145
85	190
86	215
88	263
89	300
90	350

a. Use a graphing calculator to find an equation of the line of best fit. Then plot the data and graph the equation in the same viewing window.

b. Identify and interpret the correlation coefficient.

c. Interpret the slope and y-intercept of the line of best fit.