Practice 6.2.2: Analyzing Functions Fitted to Data B

Derrick started a new website. He tracks the number of new visitors to the site each day. The number of new visitors each day is listed in the following table. Use the data for problems 1–3.

Day	Number of new visitors
1	3
2	10
3	26
4	79
5	244

1. Create a scatter plot of the data set.

2. Would a linear or exponential function be a better estimate for the data? Explain.

3. Which function is a better fit for the data: $y = 4^x$ or $y = 3^x$? Use a graph to explain your answer.

continued

The following table shows the annual profit, in millions, for a particular company. Use the data for problems 4 and 5.

Year	Profit (millions)
0	6
1	6.6
2	6.3
3	6.3
4	7
5	7
6	7
7	6.6
8	6
9	5
10	5.7

4. Create a scatter plot of the data set.

5. Which function is a better fit for the data: $y = 7 - 0.15x$ or $y = -0.05(x - 4)^2 + 7$?

continued

A sandwich shop makes 100 sandwiches each morning to prepare for the day's orders. Each half hour, they record the number of sandwiches remaining. Use the data for problems 6–10.

Hours open	Sandwiches remaining
0	100
0.5	95
1	94
1.5	92
2	85
2.5	85
3	82
3.5	81
4	73
4.5	68

6. Create a scatter plot of the data set.

7. Would a linear or exponential function be a better estimate for the data?

8. Which function is a better fit for the data: $y = -3.8x + 92$ or $y = -5.8x + 99$? Use a graph to explain your answer.

9. Fifteen minutes after the shop opened, approximately how many sandwiches were remaining?

10. Approximately how long will it take for all the sandwiches to be sold?