Looking Back Answers

1. **a.** The data plot and line will look something like this:

   ![Average Growth of a Properly Fed Pig](image)

   **b.** Possible equation: \( y = 45x + 3 \)

   **c.** Answers will vary. For the equation above, the slope \( m \) suggests that for every month the weight increases by 45 lb. The y-intercept \( b \) suggests that the pig weighed 3 lb when it was born.

   **d.** Answers will vary. The equation above predicts that at 3.5 months, the pig weighed 160 lb. At 7 months, the pig weighed roughly 318 lb.

2. **a.** The data plot and line will look something like this:

   ![Food Consumption of a Goat](image)

   **b.** Possible equation: \( y = -0.04x + 5 \)

   **c.** Answers will vary. For the equation above, the slope \( m \) suggests that for every increase of 1 °F in temperature, there is a decrease of 0.04 kg in food eaten. The y-intercept \( b \) suggests that the goat would eat 5 kg of food if the temperature were 0 °F.

   **d.** Answers will vary. The equation in part (c) predicts that, when it is 50 °F, the goat will eat 3 kg of food. When it is 70 °F, the goat will eat 2.2 kg of food. **Note:** Because the equation model is an approximation, the amount of food is also an approximation. The 2.2 kg of food eaten at 70 °F, calculated using the equation, does not fall between the amounts for 60 °F and 75 °F in the table. Students will develop methods for getting better lines of fit for their data in later mathematics courses.

3. **a.** Here’s one possible graph.

   ![Length of a Train Ride](image)
b. The speeds don’t really get reasonable until time is at least 10 minutes. The speed then (500 meters per minute) is about 19 miles per hour, which is pretty fast for a park train.

c. \[ s = \frac{5,000}{t} \] or \[ st = 5,000 \]

d. The relationship is an inverse variation. As time increases, speed decreases, but it does not decrease at a constant rate. The product of the time and speed is always 5,000.

4. The standard deviation is 4.76.

5. a. A scatter plot (with modeling line) will look like this:

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Figure 1
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<table>
<thead>
<tr>
<th></th>
<th>Farm</th>
<th>Playground</th>
<th>Picnic Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kids</td>
<td>60%</td>
<td>30%</td>
<td>10%</td>
</tr>
<tr>
<td>Adults</td>
<td>60%</td>
<td>30%</td>
<td>10%</td>
</tr>
</tbody>
</table>

b. 1; The points scatter close to the line. The correlation coefficient will actually be \( r \approx 0.98 \), a very high positive correlation indicating a strong linear relationship between the variables.

6. a. Judgments will vary on whether the kids and adults have different opinions about how to improve the park. Actually, it appears that the distributions of their recommendations are quite similar. It is only the numbers of kids and adults who were asked that is different. The table shows that the percents of each age group favoring investment in the Farm, the Playground, and the Picnic Area are identical.

b. In each case the response could be that the fraction of each group favoring the different park improvement investments is the same, only the total numbers are different because more kids were surveyed.

c. Same as answer to part (b).