Notes/CW – Scatter Plots (Part 2)

When you look at a set of data on a scatter plot, you may notice that some data points do not give a good indication of the association shown by almost all the other data points. This represents an:

Outlier – a data point with values significantly _________ or _________ than the rest of the data points in a set. It is often helpful to _________ an outlier when determining the association shown by a scatter plot because outlier can _________ data.

Ex. 3: The manager of an outdoor theater space wanted to find out if ticket prices affect the number of people who attend a concert. The scatter plot below shows the data she collected.

![Ticket Price and Concert Attendance Scatter Plot]

What association is shown by the scatter plot? Did you exclude any outliers when determining that association?

Ex. 4: The table shows the heights and weights of 7 elementary grade students.

<table>
<thead>
<tr>
<th>Height (in.)</th>
<th>40</th>
<th>45</th>
<th>50</th>
<th>53</th>
<th>50</th>
<th>60</th>
<th>55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (lb.)</td>
<td>50</td>
<td>70</td>
<td>80</td>
<td>100</td>
<td>110</td>
<td>140</td>
<td>150</td>
</tr>
</tbody>
</table>

Draw a scatter plot for these data and determine the association between height and weight for the students. Are there any outliers?
1. This scatter plot shows a relationship between age and height.

Which term best describes the relationship between the variables?
A. weak positive correlation
B. weak negative correlation
C. strong negative correlation
D. no correlation

2. This scatter plot shows a relationship between the age of a car and the miles driven each month.

Which term best describes the relationship between the variables?
A. weak positive correlation
B. weak negative correlation
C. strong positive correlation
D. strong negative correlation

3. Derek wants to make a scatter plot comparing the ages of cars (horizontal axis) and their values at those ages (vertical axis). What type of line of best fit should Derek expect his scatter plot to show?

A. a line with a positive slope
B. a line with a negative slope
C. a horizontal line
D. There would be no line of best fit.

4. This scatter plot shows a relationship between the number of TVs purchased and the price per unit.

Which term best describes the relationship between the variables?
A. strong positive correlation
B. weak negative correlation
C. strong negative correlation
D. no correlation
Notes/CW – Scatter Plots (Part 2)

When you look at a set of data on a scatter plot, you may notice that some data points do not give a good indication of the association shown by almost all the other data points. This represents an:

Outlier – a data point with values significantly lower or higher than the rest of the data points in a set. It is often helpful to ignore an outlier when determining the association shown by a scatter plot because outliers can mess up the data.

Ex. 3: The manager of an outdoor theater space wanted to find out if ticket prices affect the number of people who attend a concert. The scatter plot below shows the data she collected.

What association is shown by the scatter plot? Did you exclude any outliers when determining that association? 

Yes (20, 300)

Ex. 4: The table shows the heights and weights of 7 elementary grade students.

<table>
<thead>
<tr>
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<th>45</th>
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Draw a scatter plot for these data and determine the association between height and weight for the students. Are there any outliers? 

Positive association
Lesson Practice

1. This scatter plot shows a relationship between age and height.

Which term best describes the relationship between the variables?
A. weak positive correlation
B. weak negative correlation
C. strong negative correlation
D. no correlation

2. This scatter plot shows a relationship between the age of a car and the miles driven each month.

Which term best describes the relationship between the variables?
A. weak positive correlation
B. weak negative correlation
C. strong positive correlation
D. strong negative correlation

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C. a horizontal line
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4. This scatter plot shows a relationship between the number of TVs purchased and the price per unit.

Which term best describes the relationship between the variables?
A. strong positive correlation
B. weak negative correlation
C. strong negative correlation
D. no correlation