Moore SCC 8e

Chapter 14

1. The most common way to display the relationship between two quantitative variables is:

a. Stem and leaf

b. Histogram

*c. Scatterplot

d. Box plot

A. Incorrect. A stem and leaf is a way to display the relationship of numbers to each other in a set. A scatterplot compares two quantitative variables.
B. Incorrect. A histogram is a way to display the relationship of numbers to each other in a set. A scatterplot compares two quantitative variables.
C. Correct. A scatterplot shows the relationship between two quantitative variables.
D. Incorrect. A box plot is the graph of the five-number summary.

Text Reference: Section 14.1: Scatterplots

2. What are the possible values for r?

a. $r > 0$

b. $r < 0$

*c. $-1 \leq r \leq 1$

d. r is between 0 and 100

A. Incorrect. Correlation is $-1 < r \leq 1$.
B. Incorrect. Correlation is $-1 \leq r \leq 1$.
C. Correct.
D. Incorrect. Correlation is $-1 \leq r \leq 1$.

Text Reference: Section 14.3: Correlation

3. When calculating *r*, what values do you use?

a. Median

b. Percentile

c. Normal distribution

*d. Standard score

A. Incorrect. The correlation *r* uses standard score.
B. Incorrect. The correlation *r* uses standard score.
C. Incorrect. The correlation *r* uses standard score.
D. Correct. The correlation *r* uses the standard score of the observations.

Text Reference: Section 14.3: Correlation

4. The correlation *r* measures:

*a. The strength of straight-line association between two variables

b. The strength of curved relationships between variables

c. The distinction between explanatory and response variables

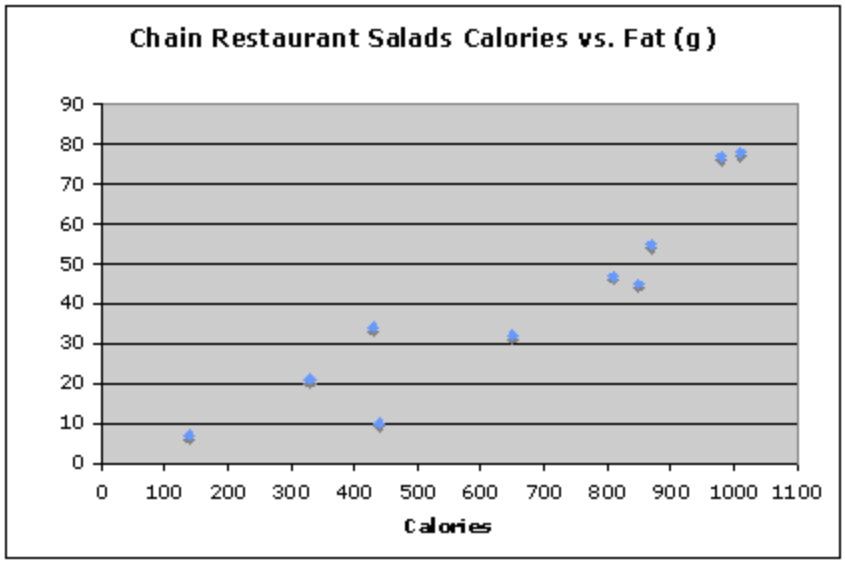
d. The change in units of measurement

A. Correct. Correlation measures the strength of only straight-line association between two variables.
B. Incorrect. Correlation measures the strength of only straight-line association between two variables. It does not describe curved relationships no matter how strong they are.

C. Incorrect. Correlation ignores the distinction between explanatory and response variables. If we reverse our choice of which variable to call *x* and which to call *y*, the correlation does not change.
D. Incorrect. Correlation does not change when we change the units of measurement.

Text Reference: Section 14.3: Correlation

5. Use the graph below to answer the following question.



(ch14q05-07.jpg)

Does the graph show a positive or negative association?

*a. Positive association

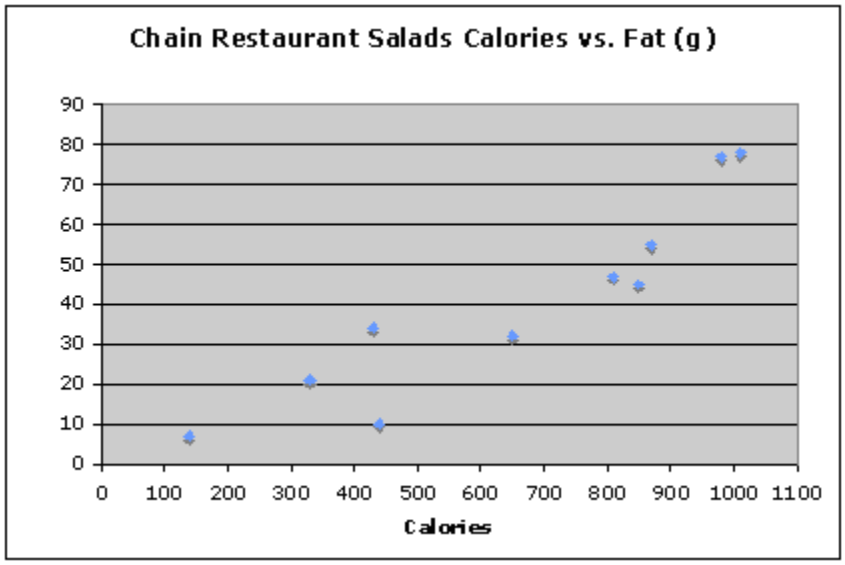
b. Negative association

c. Cannot determine from the information given

A. Correct. As calories increase so does fat.
B. Incorrect. As calories increase so does fat. This is a positive association.
C. Incorrect. As calories increase so does fat. This is a positive association.

Text Reference: Section 14.2: Interpreting scatterplots

6. Use the graph below to answer the following question.



(ch14q05-07.jpg)

Does the graph show a strong or weak correlation?

*a. Strong correlation

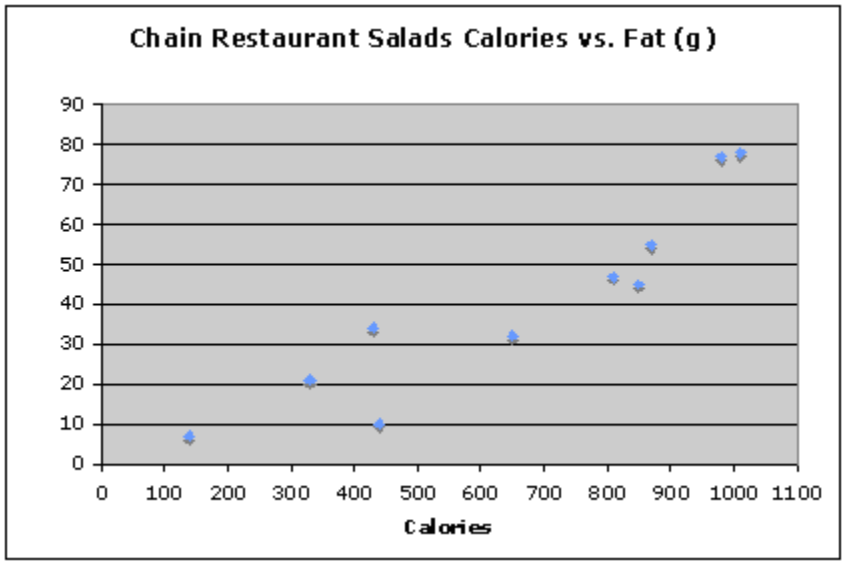
b. Weak correlation

c. Cannot determine from the information given

A. Correct. The data shows a strong linear trend and pattern.
B. Incorrect. The data shows a strong linear trend and pattern.
C. Incorrect. The data shows a strong linear trend and pattern.

Text Reference: Section 14.4: Understanding correlation

7. Use the graph below to answer the following question.



(ch14q05-07.jpg)

Which number would most likely be assigned to the correlation of this data set?

a. -0.25

b. +0.25

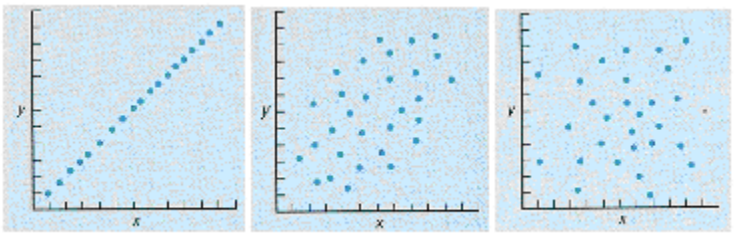
c. -0.80

*d. +0.80

A. Incorrect. This number represents a weak negative association. There is a strong, positive association here—you want a positive number that is closer to 1.0.
B. Incorrect. This number represents a weak positive association. There is a strong, positive association here—you want a positive number that is closer to 1.0.
C. Incorrect. This number represents a strong negative association. There is a strong, positive association here—you want a positive number that is close to 1.0.
D. Correct. There is a strong, positive association here—you want a positive number that is close to 1.0.

Text Reference: Section 14.4: Understanding correlation

8. Use the graphs below to answer the following question.



(ch14q08-10.jpg)

Which graph has a negative association?

a. Graph I

b. Graph II

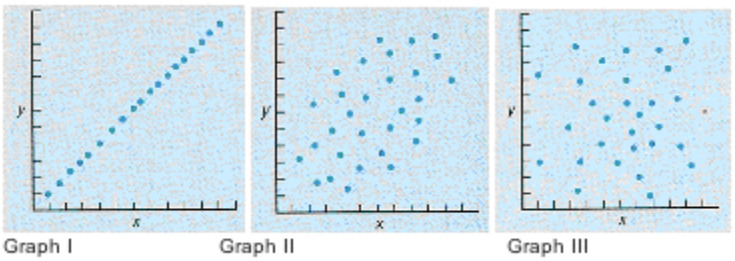
c. Graph III

*d. None of the choices are correct.

A. Incorrect. Graph I has a positive association.
B. Incorrect. Graph II has a positive association, although weak.
C. Incorrect. Graph III has a very weak positive association.
D. Correct. None of these graphs have a negative association.

Text Reference: Section 14.2: Interpreting scatterplots

9. Use the graphs below to answer the following question.



(ch14q08-10.jpg)

Which of these graphs has the strongest positive correlation?

*a. Graph I

b. Graph II

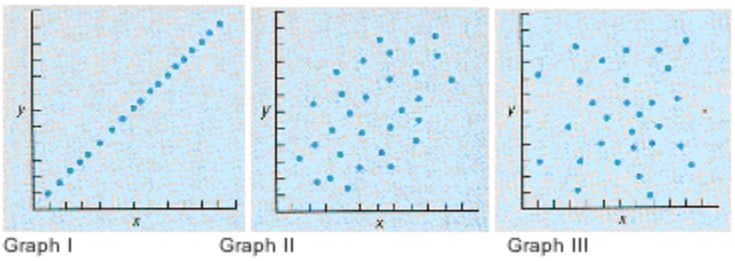
c. Graph III

d. None of the choices are correct.

A. Correct. Graph I best represents a linear trend and pattern.
B. Incorrect. Graph I best represents a linear trend and pattern.
C. Incorrect. Graph I best represents a linear trend and pattern.
D. Incorrect. Graph I best represents a linear trend and pattern.

Text Reference: Section 14.4: Understanding correlation

10. Use the graphs below to answer the following question.



(ch14q08-10.jpg)

Which of these graphs would have close to a 0 correlation?

a. Graph I

b. Graph II

*c. Graph III

d. None of the choices are correct.

A. Incorrect. The correlation associated with this would be very close to 1.
B. Incorrect. Graph III has the graph that would show closest to a 0 correlation.
C. Correct. This has the weakest correlation of the three graphs.
D. Incorrect. Graph III has the graph that would show closest to a 0 correlation.

Text Reference: Section 14.4: Understanding correlation