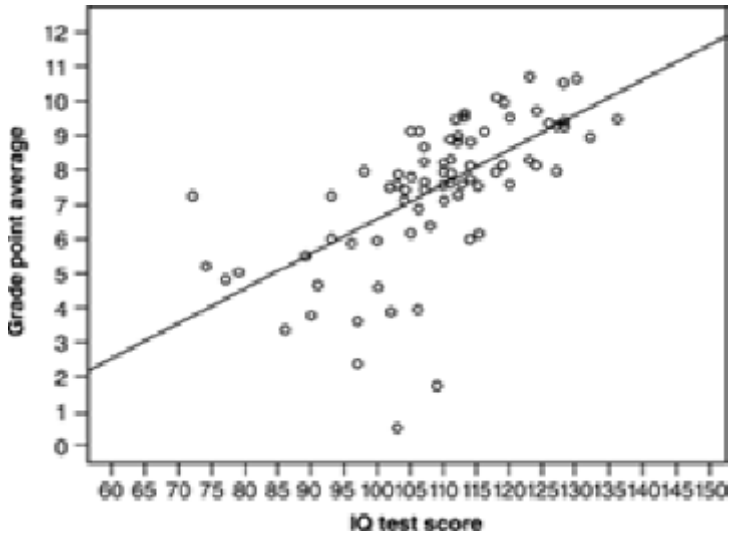
Name:_____ Class:_____ Date:_____

Quiz Chapter 14

Indicate the answer choice that best completes the statement or answers the question.

	1	2	3	4	5	6	7	8	9	10
a										
b										
c										
d										
e										

An education researcher measured the IQ test scores of 78 seventh-grade students in a rural school and also their school grade point average (GPA) measured on a 12-point scale. Here is a graph of GPA versus IQ for these students:



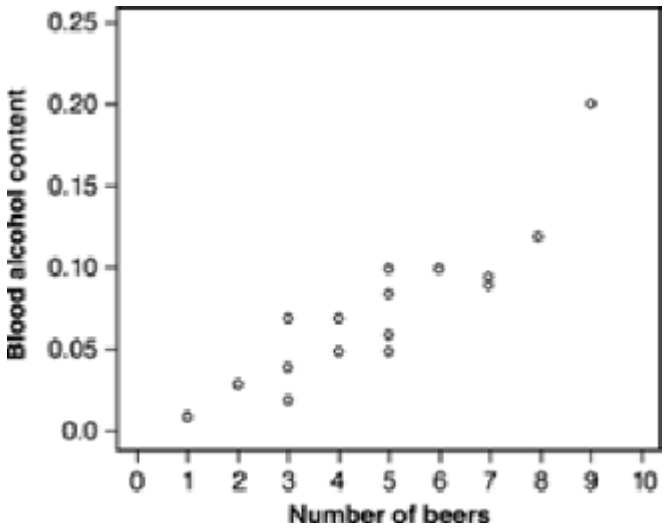
Name:_____ Class:_____ Date:_____

Quiz Chapter 14

1. The graph shows
   a. a clear positive association.
   b. very little association.
   c. a clear negative association.
   d. a skewed distribution.

line is going up
slope is positive
correlation is positive

How well does the number of beers a student drinks predict his or her blood alcohol content? Sixteen student volunteers at The Ohio State University drank a randomly assigned number of cans of beer. Thirty minutes later, a police officer measured their blood alcohol content (BAC). A scatterplot of the data appears below.



Name:_____ Class:_____ Date:_____

Quiz Chapter 14

2. The scatterplot above shows
   a. a moderately strong negative straight-line relationship between number of beers and BAC.
   b. a weak negative straight-line relationship between number of beers and BAC.
   c. almost no relationship between number of beers and BAC.
   d. a weak positive straight-line relationship between number of beers and BAC.
   e. a moderately strong positive straight-line relationship between number of beers and BAC.

e) is much better than d).

3. You calculate the correlation between height and weight for a simple random sample of 50 students from your college. Another student does the same for a simple random sample of 200 students from the college. The other student should get
   a. a correlation greater than 1.
   b. a correlation less than –1.
   c. a higher value for the correlation.
   d. a lower value for the correlation.
   e. about the same value for the correlation.

only e) left

The correlation between the foot lengths of fathers and their

(adult) sons, measured in inches, is $r = 0.92$.

4. If fathers' foot lengths were measured in millimeters (1 inch = 25.4 millimeters), and sons' foot lengths were measured in furlongs (one furlong equals 7,920 inches), the correlation between foot lengths of fathers and sons would be

a. much smaller than 0.92.
b. slightly smaller than 0.92.
c. unchanged: equal to 0.92.
d. slightly larger than 0.92.
e. much larger than 0.92.

The correlation is based on the standard scores and is thus no units of measurement.

r is unitless!

5. Which of these is *not* true of the correlation r between the weight in pounds and gas mileage in miles-per-gallon for a sample of pickup trucks?

✓ a. r must take a value between –1 and 1.
✗ b. r is measured in pounds.
✓ c. If heavier pickup trucks tend to also get lower gas mileage, then $r < 0$.
✓ d. r would not change if we measured these trucks in kilograms instead of pounds.
✓ e. Both B and D are correct.

only b) is incorrect.

Name:_____ Class:_____ Date:_____

Quiz Chapter 14

6. Which of these statements is true of the correlation *r*?

a. *r* can only take values 0 or greater than 0.

b. *r* can only take values between –1 and 1, inclusive.

c. *r* describes only straight-line relationships.

d. Both A and C are correct.

e. Both B and C are correct.

7. In computing the correlation between height (in inches) and annual income (in dollars), the units on the correlation would be

a. Dollars

b. Inches

c. Dollars per inch

d. There are no units on the value of the correlation.

8. Which of the following pairs of variables is most likely to show a positive correlation?

a. Number of classes a senior has failed and number of job offers he or she receives

b. A car's maximum speed and its gas mileage (miles per gallon)

c. TV screen size (diagonal) in inches and its cost (in dollars)

Name:_____ Class:_____ Date:_____

Quiz Chapter 14

X d. Time since removing a dish from the stove and the dish's temperature. (negative correlation)

9. Which of the statements does *not* contain a statistical blunder?

a. There is a strong negative correlation between a person's sex and the amount that he or she pays for automobile insurance.

b. The mean height of young women is 64 inches, and the correlation between their heights and weights is 0.6 inches. r is unitless

c. The correlation between height and weight for adult females is about $r = 1.2$. $-1 \le r \le 1$

d. All three prior statements contain blunders.

gender may play a role in insurance, but to say negative or positive, we need ordering: either M < F or F < M.

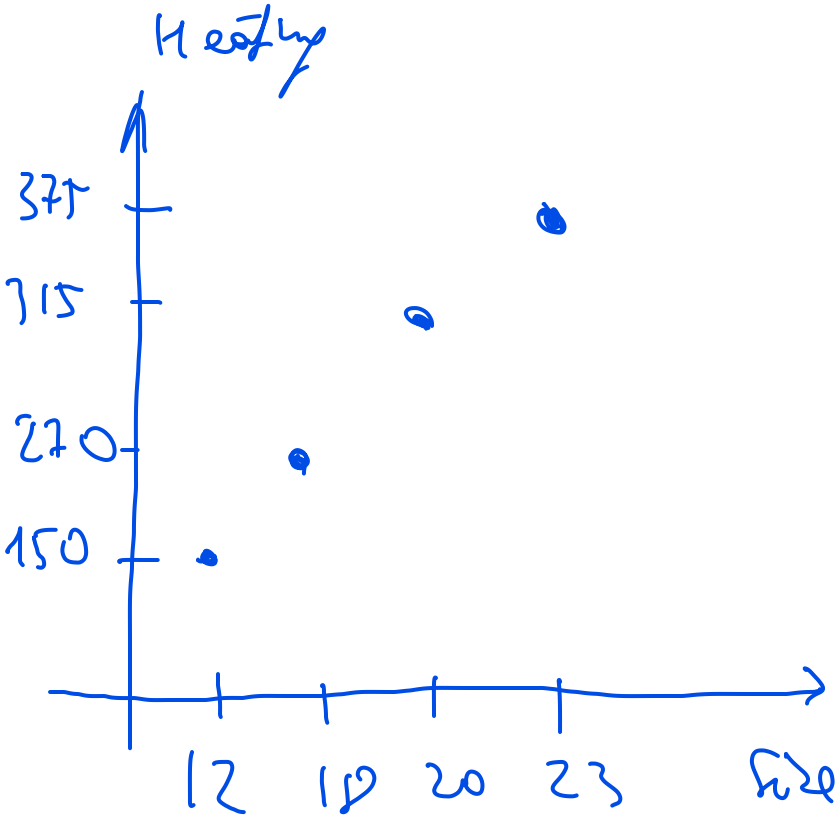
A study of home heating costs collects data on the size of houses and the monthly cost to heat the houses with natural gas. Here are the data:

Name:_____ Class:_____ Date:_____

Quiz Chapter 14

Size of House	Heating Cost
1,200 sq ft	$150
2,300 sq ft	$375
1,800 sq ft	$270
2,000 sq ft	$315

Just draw →



10. Just by looking at the data (*don't* do a calculation), you can see that the correlation between house size and heating cost is

a. close to zero. ✗
b. clearly positive. ✓
c. clearly negative. ✗
d. not close to zero, but it could be either positive or negative. ✗
e. makes no sense for these data. ✗

Name:_____ Class:_____ Date:_____

Quiz Chapter 14

Answer Key

1. a

2. e

3. e

4. c

5. b

6. e

7. d

8. c

9. d

10. b