HW1 Date:_____ Name_____

1) Which of the following is not true of statistics? 1) _____
A) Statistics involves collecting and summarizing data.
B) Statistics can be used to organize and analyze information.
C) Statistics is used to draw conclusions using data.
D) Statistics is used to answer questions with 100% certainty.

Provide an appropriate response.

2) A manufacturer of cellular phones has decided that an assembly line is operating satisfactorily if less than 0.03% of the phones produced per day are defective. To check the quality of a day's production, the company decides to randomly sample 50 phones from a day's production to test for defects. Define the population of interest to the manufacturer. 2) _____
A) all the phones produced during the day in question
B) the 0.03% of the phones that are defective
C) the 50 phones sampled and tested
D) the 50 responses: defective or not defective

3) Parking at a large university has become a very big problem. University administrators are interested in determining the average parking time (e.g. the time it takes a student to find a parking spot) of its students. An administrator inconspicuously followed 130 students and carefully recorded their parking times. Identify the sample of interest to the university administration. 3) _____
A) parking times of the 130 students
B) location of the parking spot
C) parking time of a student
D) type of car (import or domestic)

4) The legal profession conducted a study to determine the percentage of cardiologists who had been sued for malpractice in the last ten years. The sample was randomly chosen from a national directory of doctors. Identify the individuals in the study. 4) _____
A) each cardiologist selected from the directory
B) the responses: have been sued/have not been sued for malpractice in the last ten years
C) all cardiologists in the directory
D) the doctor's area of expertise (i.e., cardiology, pediatrics, etc.)

5) Which branch of statistics deals with the organization and summarization of collected information? 5) _____
A) Survey design
B) Computational statistics
C) Descriptive statistics
D) Inferential statistics

Determine whether the underlined value is a parameter or a statistic.

6) In a survey conducted in the town of Atherton, <u>22%</u> of adult respondents reported that they had been involved in at least one car accident in the past ten years. 6) _____
A) statistic
B) parameter

7) Mark retired from competitive athletics last year. In his career as a sprinter he had competed in the 100–meters event a total of 328 times. His average time for these 328 races was <u>10.27 seconds.</u> 7) _____
A) statistic
B) parameter

8) <u>26.2%</u> of the mayors of cities in a certain state are from minority groups. 8) _____
A) parameter
B) statistic

9) A study of 1600 college students in the city of Pemblington found that 10% had been victims of violent crimes. 9) _____
A) statistic B) parameter

10) 51.9% of the residents of Idlington Garden City are female. 10) _____
A) statistic B) parameter

11) Telephone interviews of 342 employees of a large electronics company found that 55% were dissatisfied with their working conditions. 11) _____
A) statistic B) parameter

12) The average age of the 65 students in Ms Hope's political science class is 21 years 11 months. 12) _____
A) parameter B) statistic

Classify the variable as qualitative or quantitative.

13) the colors of book covers on a bookshelf 13) _____
A) qualitative B) quantitative

14) the number of calls received at a company's help desk 14) _____
A) qualitative B) quantitative

15) the number of seats in a school auditorium 15) _____
A) quantitative B) qualitative

16) the numbers on the shirts of a boy's football team 16) _____
A) quantitative B) qualitative

Provide an appropriate response.

17) Quantitative variables classify individuals in a sample according to 17) _____
A) personality characteristic. B) physical attribute.
C) numerical measure. D) exhibited trait.

Determine whether the quantitative variable is discrete or continuous.

18) the number of bottles of juice sold in a cafeteria during lunch 18) _____
A) continuous B) discrete

19) the weight of a player on the wrestling team 19) _____
A) discrete B) continuous

20) the cholesterol levels of a group of adults the day after Thanksgiving 20) _____
A) continuous B) discrete

21) the low temperature in degrees Fahrenheit on January 1st in Cheyenne, Wyoming 21) _____
A) continuous B) discrete

22) the number of goals scored in a hockey game 22) _____
A) discrete B) continuous

23) the speed of a car on a Boston tollway during rush hour traffic 23) _____
A) discrete B) continuous

24) the number of phone calls to the police department on any given day 24) _____
A) continuous B) discrete

25) the age of the oldest employee in the data processing department 25) _____
A) discrete B) continuous

26) the number of pills in an aspirin bottle 26) _____
A) continuous B) discrete

Provide an appropriate response.

27) The peak shopping time at a pet store is between 8–11:00 am on Saturday mornings. Management at the pet store randomly selected 130 customers last Saturday morning and decided to observe their shopping habits. They recorded the number of items that a sample of the customers purchased as well as the total time the customers spent in the store. Identify the types of variables recorded by the pet store. 27) _____
A) number of items – discrete; total time – discrete
B) number of items – continuous; total time – continuous
C) number of items – discrete; total time – continuous
D) number of items – continuous; total time – discrete

Determine the sampling technique which is used.

28) Thirty–five math majors, 43 music majors and 26 history majors are randomly selected from 496 math majors, 278 music majors and 336 history majors at the state university. What sampling technique is used? 28) _____
A) convenience
B) stratified
C) random
D) cluster
E) systematic

29) Every fifth adult entering an airport is checked for extra security screening. What sampling technique is used? 29) _____
A) stratified
B) random
C) cluster
D) convenience
E) systematic

30) At a local technical school, five auto repair classes are randomly selected and all of the students from each class are interviewed. What sampling technique is used? 30) _____
A) stratified
B) convenience
C) systematic
D) random
E) cluster

31) A writer for an art magazine randomly selects and interviews fifty male and fifty female artists. What sampling technique is used? 31) _____
A) cluster
B) systematic
C) random
D) stratified
E) convenience

32) A travel industry researcher interviews all of the passengers on five randomly selected cruises. What sampling technique is used? 32) _____
A) systematic
B) stratified
C) cluster
D) random
E) convenience

33) A statistics student interviews everyone in his apartment building to determine who owns a cell phone. What sampling technique is used? 33) _____
A) convenience
B) systematic
C) cluster
D) stratified
E) random

34) A lobbyist for the oil industry assigns a number to each senator and then uses a computer to randomly generate ten numbers. The lobbyist contacts the senators corresponding to these numbers. What sampling technique was used? 34) _____
A) convenience
B) cluster
C) systematic
D) stratified
E) random

35) Based on 10,500 responses from 29,500 questionnaires sent to all its members, a major medical association estimated that the annual salary of its members was $102,500 per year. What sampling technique was used? 35) _____
A) cluster
B) convenience
C) stratified
D) random
E) systematic

36) In a recent online survey, participants were asked to answer "yes" or "no" to the question "Are you in favor of stricter gun control?" 6571 responded "yes" while 4237 responded "no". There was a fifty–cent charge for the call. What sampling technique was used? 36) _____
A) random
B) systematic
C) convenience
D) cluster
E) stratified

Provide an appropriate response.

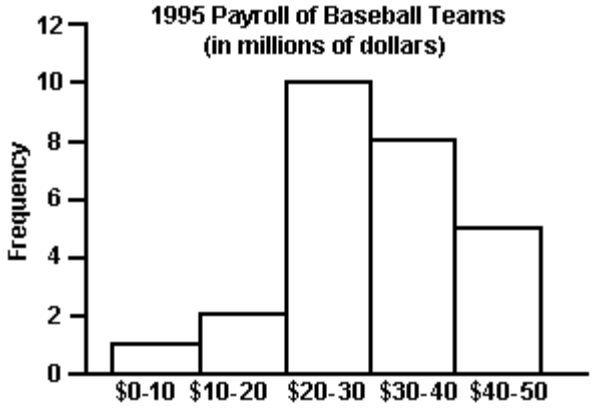
37) Which type of bias occurs because we do not obtain complete information about a population? 37) _____

A) response bias B) sampling bias
C) no bias D) nonresponse bias

38) Multiple choice questions on a test that include as one of the choices "none of the above" are an example of what type of question? 38) _____

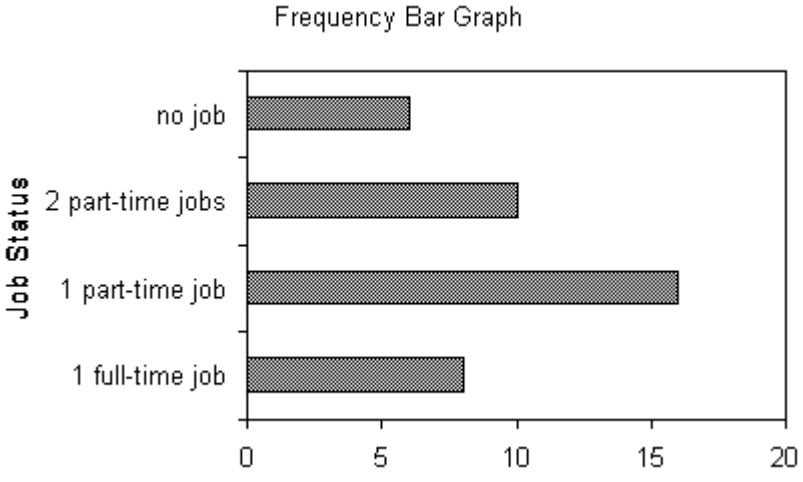
A) framing question B) open question
C) closed question D) reader response question

39) The 1995 payroll amounts for all major–league baseball teams are shown below. What percentage of the payrolls were in the $20–$30 million range? 39) _____



A) 10% B) 11% C) 59% D) 38%

40) The Excel frequency bar graph below describes the employment status of a random sample of U.S. adults. What is the percentage of those having no job? 40) _____



A) 15% B) 20%
C) cannot determine D) 40%

41) For the stem–and–leaf plot below, what are the maximum and minimum entries? 41) _____

1 | 0 8
1 | 6 6 6 7 8 9
2 | 0 1 1 2 3 4 4 5 6 6
2 | 7 7 7 8 8 9 9 9
3 | 0 1 1 2 3 4 4 5 5
3 | 6 6 6 7 8 8 9 9
4 | 1 7

A) max: 47; min: 10
B) max: 41; min: 10
C) max: 38; min: 7
D) max: 47; min: 18

Construct a frequency distribution for the data using five classes. Describe the shape of the distribution.

42) The data set: Pick Three Lottery Outcomes for 10 Consecutive Weeks 42) _____

3 6 7 6 0 6 1 7 8 4
1 5 7 5 9 1 5 3 9 9
2 2 3 0 8 8 4 0 2 4

A) uniform
B) skewed to the right
C) bell shaped
D) skewed to the left

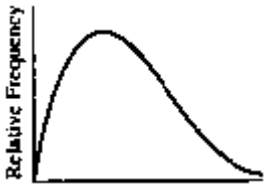
43) The data set: weekly grocery bills (in dollars) for 20 randomly selected households 43) _____

135 120 115 132 136 124 119 145 98 110
125 120 115 130 140 105 116 121 125 108

A) bell shaped
B) skewed to the right
C) skewed to the left
D) uniform

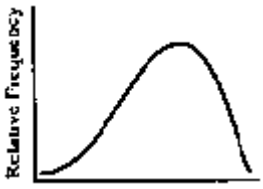
Describe the shape of the distribution.

44) 44) _____



A) uniform
B) skewed to the right
C) skewed to the left
D) bell shaped

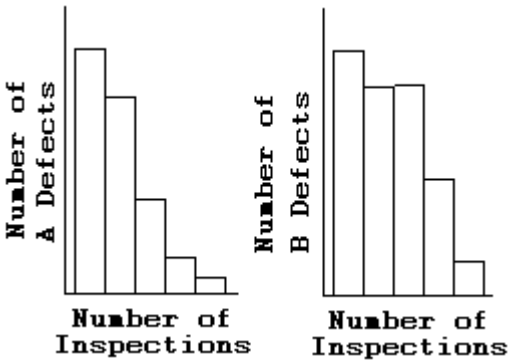
45) 45) _____



A) uniform
B) bell shaped
C) skewed to the left
D) skewed to the right

Use the histograms shown to answer the question.

46) 46) _____



Is either histogram symmetric?

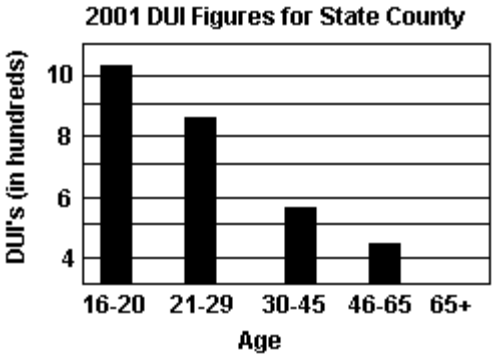
A) The first is symmetric, but the second is not symmetric.
B) The second is symmetric, but the first is not symmetric.
C) Neither is symmetric.
D) Both are symmetric.

Explain what is misleading about the graphic.

47) 47) _____

A) The graphic is not misleading.
B) The trend is depicted in the wrong direction.
C) The vertical scale does not begin at zero.
D) The horizontal label is incomplete.

48) 48) _____



A) The graphic is not misleading.
B) The horizontal scale does not begin at zero.
C) The graphic may give the impression that drivers over age 65 had no DUI's in 2001.
D) The graphic only includes information for one year.

Provide an appropriate response.

49) The heights of ten male students (in inches) in a college biology class are listed below. Find the mean. 49) _____

71 67 67 72 76 72 73 68 72 72

A) 67 inches B) 68 inches C) 71 inches D) 72 inches

50) If X_1, X_2, X_3, ..., X_N are the N observations of a variable from a population, then the population mean is symbolized by 50) _____

A) Σ B) μ C) $\bar{X}$ D) X

51) A numerical summary of a population is a 51) _____

A) Statistic B) Variable

C) Parameter D) Qualitative response

52) The number of students enrolled in a physics class for the last ten semesters are listed below. Find the median number of students. 52) _____

65 66 67 66 67 70 67 70 71 68

A) 68 students B) 70 students C) 66 students D) 67 students

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

53) The annual profits of ten internet businesses are listed below. Find the mean and median profits. Round the median to the nearest dollar. Which measure– the mean or the median– best represents the data? Explain your reasoning. 53) _____

$1,172,246 $163,659 $440,584 $350,634 $290,596

$186,731 $145,809 $143,209 $139,096 $125,106

A) Mean B) Median

54) The median of a data set for a variable is the data value that 54) _____

A) Is the average, that is, the sum of all the data values of the variable divided by the number of observations in the data set?

B) None of these

C) Lies in the middle of the data when the data is arranged in ascending order.

D) Appears the most often

55) The commuting times of ten employees (in minutes) are listed below. Find the mode score. 55) _____

65 66 67 66 67 70 67 70 71 68

A) 65 minutes B) 66 minutes C) 68 minutes D) 67 minutes

Compute the range for the set of data.

56) 14, 20, 14, 20, 14, 20, 14, 20 56) _____

A) 6 B) 12 C) 17 D) 20

Provide an appropriate response.

57) The January utility bills (in dollars) for 20 residents of a large city are listed below. Find the range of the data. 57) _____

70 72 71 70 69 73 69 68 70 71

67 71 70 74 69 68 71 71 71 72

A) $2.98 B) $2 C) $7 D) $1.73

Find the sample standard deviation.

58) 5, 6, 7, 8, 9 58) _____

A) 1.3 B) 1.5 C) 2.5 D) 1.6

59) 155, 255, 298, 214, 203, 194, 298, 165, 216 59) _____

A) 49.0 B) 2703.0 C) 2402.7 D) 52.0

Provide an appropriate response.

60) The costs (in dollars) of 10 college math textbooks are listed below. Find the sample standard deviation. 60) _____

70 72 71 70 69 73 69 68 70 71

A) $1.49 B) $2.23 C) $5.00 D) $70.30

61) Last year batting averages in professional baseball averaged 0.263 with a high of 0.339 and a low of 0.221 (minimum 250 at–bats). Based on this information, which measure of variation could be calculated? 61) _____

A) range B) variance

C) percentile D) standard deviation

62) Which is not a measure of dispersion? 62) _____

A) Range B) Standard deviation

C) Variance D) Mean

63) At a tennis tournament a statistician keeps track of every serve. The statistician reported that the mean serve speed of a particular player was 96 miles per hour (mph) and the standard deviation of the serve speeds was 11 mph. Assume that the statistician also gave us the information that the distribution of the serve speeds was bell shaped. What proportion of the player's serves are expected to be between 107 mph and 118 mph? 63) _____

A) 0.95 B) 0.270 C) 0.1350 D) 0.68

64) A small computing center has found that the number of jobs submitted per day to its computers has a distribution that is approximately bell shaped, with a mean of 74 jobs and a standard deviation of 5. Where do we expect most (approximately 95%) of the distribution to fall? 64) _____

A) between 64 and 89 jobs per day B) between 59 and 89 jobs per day

C) between 64 and 84 jobs per day D) between 69 and 79 jobs per day

65) A study was designed to investigate the effects of two variables – (1) a student's level of mathematical anxiety and (2) teaching method – on a student's achievement in a mathematics course. Students who had a low level of mathematical anxiety were taught using the traditional expository method. These students obtained a mean score of 490 with a standard deviation of 20 on a standardized test. Assuming a bell–shaped distribution, where would approximately 99.7% of the students score? 65) _____

A) below 450 or above 530 B) between 430 and 550

C) below 430 or above 550 D) between 450 and 530

66) For the following data, approximate the mean number of unused vacation days at the end of the year. 66) _____

Days	Frequency
1–2	16
3–4	13
5–6	24
7–8	19
9–10	30

A) 5.7 B) 6.7 C) 6.2 D) 7.4

67) For the following data, approximate the mean number of emails received per day. 67) _____

Emails (per day)	Frequency
8–11	8
12–15	12
16–19	43
20–23	6
24–27	4

A) 16.7 B) 18.2 C) 15.2 D) 16.2

68) For the following data, approximate the mean weekly grocery bill. 68) _____

Bill (in dollars)	Frequency
135–139	10
140–144	13
145–149	16
150–154	18
155–159	11

A) $147.50 B) $146.00 C) $149.50 D) $145.50

69) For the following data set, approximate the sample standard deviation of unused vacation days . 69) _____

Days	Frequency
1–2	9
3–4	22
5–6	28
7–8	15
9–10	14

A) 5.5 days B) 5.9 days C) 2.4 days D) 3.5 days

70) For the following data set, approximate the sample standard deviation of emails per day. 70) _____

Emails (per day)	Frequency
8–11	18
12–15	23
16–19	38
20–23	47
24–27	32

A) 25.8 emails B) 4.0 emails C) 19.3 emails D) 5.1 emails

71) Find the z–score for the value 60, when the mean is 86 and the standard deviation is 8. 71) _____

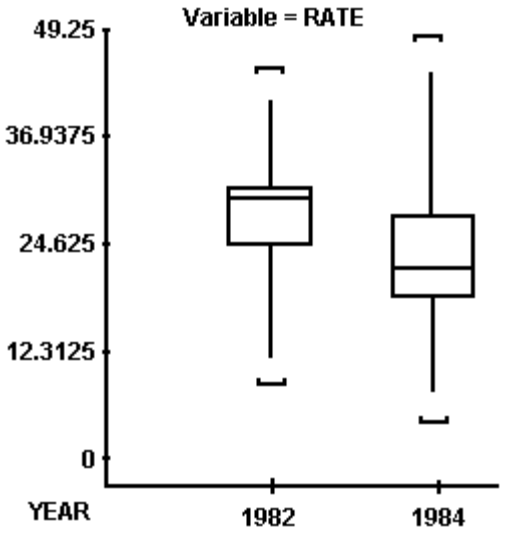
A) z = 0.60 B) z = –3.25 C) z = –0.60 D) z = –3.37

72) A student scores 74 on a geography test and 282 on a mathematics test. The geography test has a mean of 80 and a standard deviation of 5. The mathematics test has a mean of 300 and a standard deviation of 12. If the data for both tests are normally distributed, on which test did the student score better relative to the other students in each class? 72) _____

A) The student scored better on the geography test.
B) The student scored the same on both tests.
C) The student scored better on the mathematics test.

73) SAS was used to compare the high school dropout rates for the 50 states in 1982 and 1984. The box plots generated for these dropout rates are shown below. 73) _____

Compare the center of the distributions and the variation of the distributions for the two years.



A) Dropout rates had a lower average with less variability in 1982 than in 1984.
B) Dropout rates had a higher average with more variability in 1982 than in 1984.
C) Dropout rates had a lower average with more variability in 1982 than in 1984.
D) Dropout rates had a higher average with less variability in 1982 than in 1984.

74) The _____ variable is the variable whose value can be explained by the _____ variable. 74) _____

A) response; lurking B) response; predictor
C) lurking; response D) predictor Response

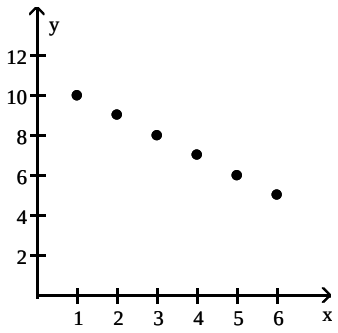
75) A researcher determines that the linear correlation coefficient is 0.85 for a paired data set. This indicates that there is 75) _____

A) a strong negative linear correlation.
B) a strong positive linear correlation.
C) no linear correlation but that there may be some other relationship.
D) insufficient evidence to make any decision about the correlation of the data.

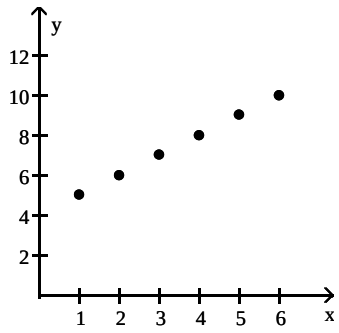
Use the scatter diagrams shown, labeled a through f to solve the problem.

76) In which scatter diagram is r = 0.01? 76) _____

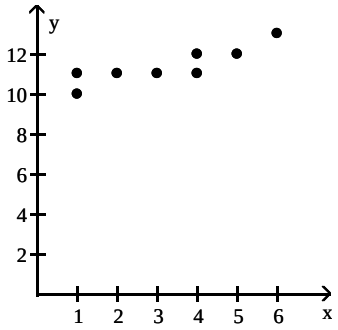
a



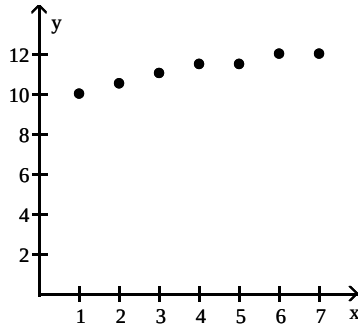
b



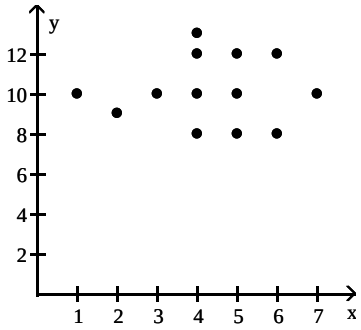
c



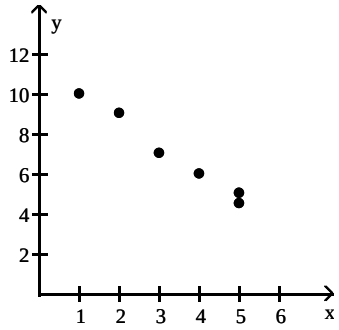
d



e



f



A) f B) e C) c D) d

Provide an appropriate response.

77) An instructor wishes to determine if there is a relationship between the number of absences from his class and a student's final grade in the course. What is the predictor variable? 77) _____

A) Student's performance on the final examination
B) The instructor's point scale for attendance
C) Absences
D) Final Grade

78) A medical researcher wishes to determine if there is a relationship between the number of prescriptions written by medical professionals, per 100, children and the child's age. She surveys all the pediatrician's in a geographical region to collect her data. What is the response variable? 78) _____

A) Pediatricians surveyed B) Age of the child
C) 100 prescriptions D) Number of prescriptions written

79) True or False: A doctor wishes to determine the relationship between a male's age and that male's total cholesterol level. He tests 200 males and records each male's age and that male's total cholesterol level. The males cholesterol level is the predictor variable? 79) _____

A) True B) False

80) A scatter diagram locates a point in a two dimensional plane. The diagram locates the _____ variable on the horizontal axis and the _____ variable on the vertical axis. 80) _____

A) study; predictor B) response; study

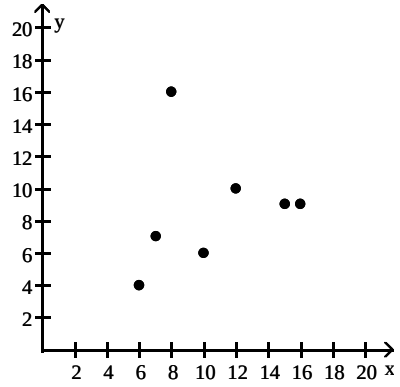
C) predictor; response D) response; predictor

Make a scatter diagram for the data. Use the scatter diagram to describe how, if at all, the variables are related.

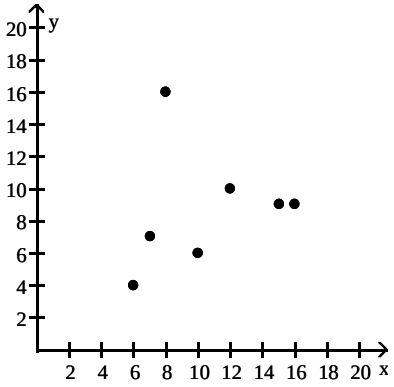
Subject	A	B	C	D	E	F	G
81) x Time watching TV	10	6	4	9	9	7	8
y Time on Internet	12	10	6	15	16	7	16

81) _____

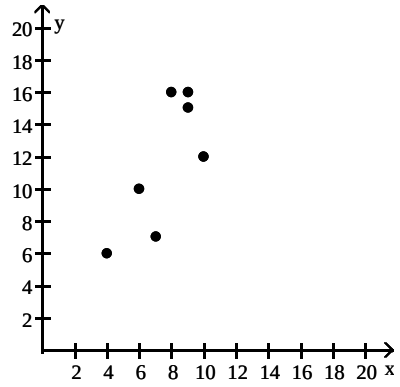
A) The variables appear to be negatively, linearly related.



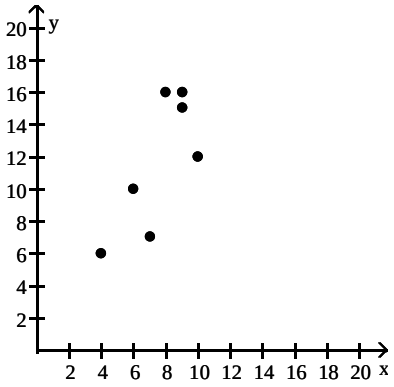
B) The variables do not appear to be linearly related.



C) The variables do not appear to be linearly related.



D) The variables appear to be positively, linearly related.



Provide an appropriate response.

82) Calculate the linear correlation coefficient for the data below. 82) _____

x	−13	−11	−4	−7	−9	−10	−8	−6	−5	−12
y	−1	1	18	10	7	3	8	12	15	1

A) 0.990 B) 0.792 C) 0.881 D) 0.819

83) The data below are the final exam scores of 10 randomly selected calculus students and the number of hours they slept the night before the exam. Calculate the linear correlation coefficient. 83) _____

Hours, x	8	10	7	13	7	9	9	10	11	8
Scores, y	60	75	55	83	61	73	80	85	85	66

A) 0.847 B) 0.654 C) 0.761 D) 0.991

84) The data below are the average one–way commute times (in minutes) of selected students during a summer literature class and the number of absences for those students for the term. Calculate the linear correlation coefficient. 84) _____

Commute time (min), x	75	88	94	93	91	101	78	103	83
Number of absences, y	4	8	11	11	9	16	5	16	6

A) 0.881 B) 0.980 C) 0.890 D) 0.819

85) In an area of the Great Plains, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). Calculate the linear correlation coefficient. 85) _____

Rainfall (in inches), x	9.4	7.7	12.3	11.4	17.7	9.2	5.9	14.5	14.9
Yield (bushels per acre), y	46.5	42.2	54.8	55	78.4	45.2	27.9	72	74.8

A) 0.900 B) 0.899 C) 0.981 D) 0.998

Compute the linear correlation coefficient between the two variables and determine whether a linear relation exists.

86) The table below shows the scores on an end–of–year project of 10 randomly selected architecture students and the number of days each student spent working on the project. 86) _____

Days, x	7	9	6	12	6	8	8	9	10	7
Score, y	67	82	62	90	68	80	87	92	92	73

A) r = 0.847; no linear relation exists B) r = 0.761; linear relation exists
C) r = 0.847; linear relation exists D) r = 0.761; no linear relation exists

87) The table below shows the ages and weights (in pounds) of 9 randomly selected tennis coaches. 87) _____

Age, x	36	39	43	46	49	51	55	59	63
Weight (pounds), y	113	117	120	128	139	142	145	147	149

A) r = 0.908; linear relation exists B) r = 0.908; no linear relation exists
C) r = 0.960; linear relation exists D) r = 0.960; no linear relation exists

88) The table shows the number of days off last year and the earnings for the year (in thousands of dollars) for nine randomly selected insurance salesmen. 88) _____

Number of days off, x	5	8	11	9	14	7	20	13
Earnings for the year (thousands of dollars), y	95	83	77	79	68	89	52	73

10
79

A) r = –0.899; no linear relation exists B) r = –0.899; linear relation exists
C) r = –0.991; linear relation exists D) r = –0.991; no linear relation exists

Provide an appropriate response.

89) Find the equation of the regression line for the given data. 89) _____

x	–5	–3	4	1	–1	–2	0	2	3	–4
y	–10	–8	9	1	–2	–6	–1	3	6	–8

A) $\hat{y} = 0.522x - 2.097$
B) $\hat{y} = 2.097x + 0.552$
C) $\hat{y} = 2.097x - 0.552$
D) $\hat{y} = -0.552x + 2.097$

90) Find the equation of the regression line for the given data. 90) _____

x	−5	−3	4	1	−1	−2	0	2	3	−4
y	11	6	−6	−1	3	4	1	−4	−5	8

A) $\hat{y}$= −0.758x − 1.885
B) $\hat{y}$= −1.885x + 0.758
C) $\hat{y}$= 1.885x − 0.758
D) $\hat{y}$ = 0.758x + 1.885

91) Find the equation of the regression line for the given data. 91) _____

x	−5	−3	4	1	−1	−2	0	2	3	−4
y	11	−6	8	−3	−2	1	5	−5	6	7

A) $\hat{y}$= 2.097x − 0.206
B) $\hat{y}$= 0.206x − 2.097
C) $\hat{y}$= −0.206x + 2.097
D) $\hat{y}$= −2.097x + 0.206

92) The data below are the final exam scores of 10 randomly selected history students and the number of hours they slept the night before the exam. Find the equation of the regression line for the given data. What would be the predicted score for a history student who slept 7 hours the previous night? Is this a reasonable question? Round your answer to the nearest whole number. 92) _____

Hours, x	3	5	2	8	2	4	4	5	6	3
Scores, y	65	80	60	88	66	78	85	90	90	71

A) $\hat{y}$= −5.044x + 56.11; 21; No, it is not reasonable. 7 hours is well outside the scope of the model.
B) $\hat{y}$= −5.044x + 56.11; 21; Yes, it is reasonable.
C) $\hat{y}$= 5.044x + 56.11; 91; No, it is not reasonable. 7 hours is well outside the scope of the model.
D) $\hat{y}$= 5.044x + 56.11; 91; Yes, it is reasonable.

93) In an area of the Great Plains, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). Find the equation of the regression line for the given data. 93) _____

Rainfall (in inches), x	10.5	8.8	13.4	12.5	18.8	10.3	7.0	15.6	16.0
Yield (bushels per acre), y	50.5	46.2	58.8	59.0	82.4	49.2	31.9	76.0	78.8

A) $\hat{y}$= 4.267x + 4.379
B) $\hat{y}$ = 4.267x − 4.379
C) $\hat{y}$ = 4.379x + 4.267
D) $\hat{y}$= −4.379x + 4.267

94) Given the equation of a regression line is $\hat{y}$ = 5x − 8, what is the best predicted value for y given x = 10? 94) _____

A) 58 B) 75 C) 7 D) 42

95) Given the equation of a regression line is $\hat{y}$= −2.5x− 8.0, what is the best predicted value for y given x = 9.4? 95) _____

A) −31.50 B) 31.50 C) 15.50 D) −15.50

96) The data below are the final exam scores of 10 randomly selected chemistry students and the number of hours they slept the night before the exam. What is the best predicted value for y given x = 2? 96) _____

Hours, x	3	5	2	8	2	4	4	5	6	3
Scores, y	65	80	60	88	66	78	85	90	90	71

A) 65 B) 64 C) 66 D) 67

97) In an area of the Great Plains, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). Which is the best predicted value for y given x = 16.8? 97) _____

Rainfall (in inches), x	10.5	8.8	13.4	12.5	18.8	10.3	7.0	15.6	16.0
Yield (bushels per acre), y	50.5	46.2	58.8	59.0	82.4	49.2	31.9	76.0	78.8

A) 77.6 B) 78.3 C) 78.1 D) 77.8

98) In an area of Russia, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). The data for a 9 year period is as follows: 98) _____

Rain Fall, x	13.1	11.4	16.0	15.1	21.4	12.9	9.6	18.2	18.6
Yield, y	48.5	44.2	56.8	80.4	47.2	29.9	74.0	74.0	76.8

The equation of the line of least squares is given as $\hat{y} = -9.12 + 4.38x$. How many bushels of wheat per acre can be predicted if it is expected that there will be 30 inches of rain?

A) 122.28
B) 140.52
C) 8.93
D) Cannot be certain of the result because 30 inches of rain exceeds the observed data.

99) In an area of Russia, records were kept on the relationship between the rainfall (in inches) and the yield of wheat (bushels per acre). The data for a 9 year period is as follows: 99) _____

Rain Fall, x	13.1	11.4	16.0	15.1	21.4	12.9	9.6	18.2	18.6
Yield, y	48.5	44.2	56.8	80.4	47.2	29.9	74.0	74.0	76.8

The equation of the line of least squares is given as $\hat{y} = -9.12 + 4.38x$. What would be the expected number of inches of rain if the yield is 60 bushels of wheat per acre?

A) 15.78 B) 64.74 C) 11.62 D) 253.68

100) In order for a company's employees to work for the foreign office, they must take a test in the language of the country where they plan to work. The data below show the relationship between the number of years that employees have studied a particular language and the grades they received on the proficiency exam. What is the best predicted value for y given x = 1.5? 100) _____

Number of years, x	3	4	4	5	3	6	2	7	3
Grades on test, y	61	68	75	82	73	90	58	93	72

A) 57 B) 55 C) 59 D) 53