

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

The exercise presents numerical information. Describe the population whose properties are analyzed by the data.

- 1) During 2001, 56% of households in City A were online.

A) online households in City A	B) households in the country
C) online households in the country	D) households in City A

- 2) During 2001, there were 522 crimes in a certain city per 100,000 residents.

A) residents of the country	B) criminals in the city
C) residents of the city	D) criminals in the country

Solve the problem.

- 3) The stem-and-leaf plot below displays the ages of 30 attorneys at a small law firm.

Stems	Attorneys
4	99
5	00112589
6	1234458
7	1233458
8	0137
9	12

What is the age of the oldest attorney? What is the age of the youngest attorney?

- A) The oldest attorney is 102 years old. The youngest attorney is 31 years old.
 - B) The oldest attorney is 82 years old. The youngest attorney is 59 years old.
 - C) The oldest attorney is 91 years old. The youngest attorney is 48 years old.
 - D) The oldest attorney is 92 years old. The youngest attorney is 49 years old.
- 4) The stem-and-leaf plot below displays the ages of 30 attorneys at a small law firm.

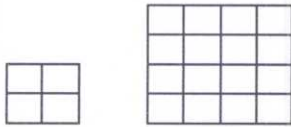
Stems	Attorneys
3	99
4	00112589
5	1234458
6	1233458
7	0137
8	12

What is the age of the oldest attorney? What is the age of the youngest attorney?

- A) The oldest attorney is 92 years old. The youngest attorney is 21 years old.
- B) The oldest attorney is 82 years old. The youngest attorney is 39 years old.
- C) The oldest attorney is 81 years old. The youngest attorney is 38 years old.
- D) The oldest attorney is 72 years old. The youngest attorney is 49 years old.

Describe the error in the visual display shown.

5)



The volume of our sales has doubled!!!

- A) The length of a side has doubled, but the area has been multiplied by 8.
- B) The length of a side has doubled, but the area has been multiplied by 4.
- C) There is no error.
- D) The length of a side has doubled, but the area has been unchanged.

Find the mean for the group of data items.

6) 26, 26, 42, 44, 47, 26

- A) 37
- B) 42.2
- C) 35.17
- D) 30.83

Find the median for the group of data items.

7) 96, 96, 94, 48, 77, 96

- A) 94
- B) 96
- C) 95
- D) 48

Find the mode for the group of data items. If there is no mode, so state.

8) 97, 97, 90, 49, 72, 97

- A) 90
- B) no mode
- C) 49
- D) 97

Find the midrange for the group of data items.

9) 100, 100, 90, 58, 75, 100

- A) 79
- B) 95
- C) 87.5
- D) 74

For the given data set, find the a. mean b. median c. mode (or state that there is no mode) d. midrange.

10) A company advertised that, on the average, 99% of their customers reported "very high satisfaction" with their services. The actual percentages reported in 15 samples were the following:
99, 99, 93, 52, 75, 99, 93, 75, 99, 99, 52, 93, 93, 99, 52

a. Find the mean, median, mode and midrange. b. Which measure of central tendency was given in the advertisement? c. Which measure of central tendency is the best indicator of the "average" in this situation?

- A) a. mean = 84.8, median = 93, mode = 99, midrange = 75.5
b. mode
c. mean
- B) a. mean = 84.8, median = 93, mode = 99, midrange = 75.5
b. mode
c. median
- C) a. mean = 84.8, median = 93, mode = 99, midrange = 75.5
b. mode
c. mode
- D) a. mean = 84.8, median = 93, mode = 99, midrange = 75.5
b. median
c. mean

Find the range for the group of data items.

11) 8, 8, 8, 19, 26, 26, 26

A) 18

B) 34

C) 11

D) 19

12) 6, 7, 8, 9, 10

A) 4

B) 6

C) 8

D) 10

13) 14, 17, 14, 17, 14, 17, 14, 17

A) 15.5

B) 3

C) 17

D) 31

Find the a. mean and b. standard deviation of the data set. Round answers to two decimal places.

14) International Travel Destinations of U.S. Citizens in 2000.

Country	U.S. Citizens, in thousands
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A	1000
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B	600
---	-----

C	220
---	-----

D	200
---	-----

E	160
---	-----

F	105
---	-----

G	103
---	-----

H	102
---	-----

I	90
---	----

J	80
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A) a. 260 b. 300.55

B) a. 260 b. 9000

C) a. 266 b. 300.55

D) a. 266 b. 9000

Compute the mean, range, and standard deviation for the data items in each of the three samples. Then one way in which the samples are alike and one way in which they are different.

15) Sample A: 6, 8, 10, 12, 14, 16, 18

Sample B: 6, 9, 9, 12, 15, 15, 18

Sample C: 6, 6, 6, 12, 18, 18, 18

A) Mean (A) 8 (B) 9 (C) 10. Range (for A, B, and C): 12 Standard deviation: (A) 6 (B) 6 (C) 6. Samples have the same standard deviation but different means.

B) Mean (A) 11 (B) 12 (C) 13. Range (for A, B, and C): 12 Standard deviation: (A) 6 (B) 6 (C) 6. Samples have the same standard deviation but different means.

C) Mean (for A, B and C): 12 Range (for A, B, and C): 12 Standard deviation: (A) 4.32 (B) 4.24 (C) 6. Samples have the same mean but different standard deviations.

D) Mean (for A, B and C): 12 Range (for A, B, and C): 12 Standard deviation: (A) 7 (B) 4.24 (C) 6. Samples have the same mean but different standard deviations.

The scores on a driver's test are normally distributed with a mean of 100. Find the score that is:

16) Find the score that is $2\frac{1}{2}$ standard deviations above the mean, if the standard deviation is 24.

A) 124

B) 112

C) 160

D) 136

Suppose that prices of a certain model of new homes are normally distributed with a mean of \$150,000. Use the 68-95-99.7 rule to find the percentage of buyers who paid:

17) between \$148,900 and \$151,100 if the standard deviation is \$1100.

A) 99.7%

B) 95%

C) 68%

D) 34%

A set of data items is normally distributed with a mean of 60. Convert the data item to a z-score, if the standard deviation is as given.

18) data item: 88; standard deviation: 7

A) 28

B) $\frac{15}{7}$

C) 4

D) 7

Use a table of z-scores and percentiles to find the percentage of data items in a normal distribution that lie between:

19) $z = -2$ and $z = -0.1$

A) 53.98%

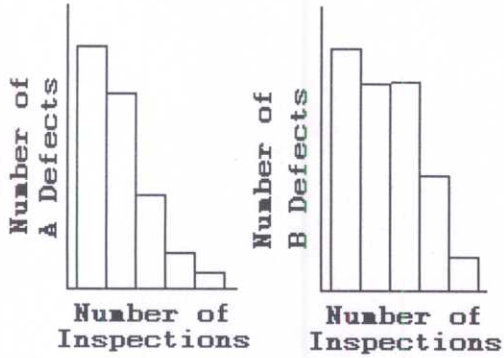
B) 43.74%

C) 2.28%

D) 46.02%

Use the histograms shown to answer the question.

20)



Can the number of A defects or the number of B defects be described using the normal distribution?

A) The first is normal, but the second is not normal.

B) The second is normal, but the first is not normal.

C) Neither is normal.

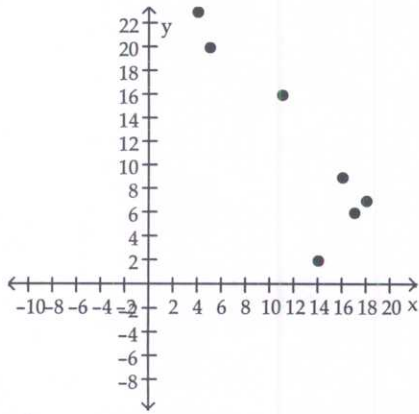
D) Both are normal.

Make a scatter plot for the given data. Use the scatter plot to describe whether or not the variables appear to be related.

21)

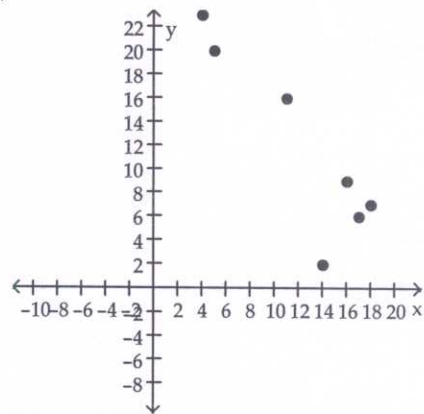
x	9	7	2	6	5	11	4
y	16	18	14	17	20	16	23

A)



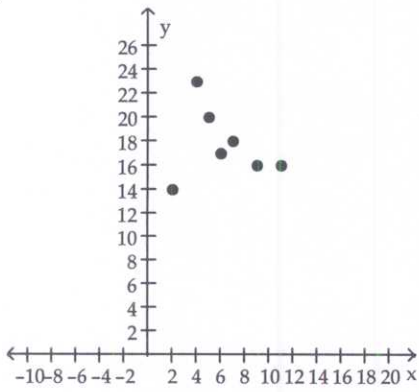
The variables do not appear to be related.

B)



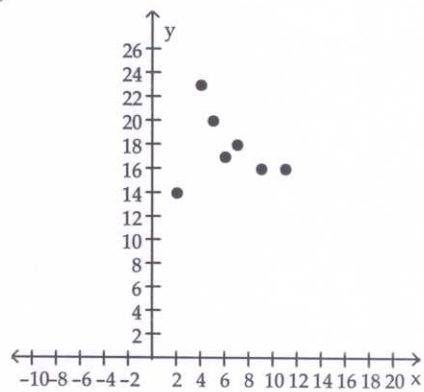
The variables appear to be related.

C)



The variables appear to be related.

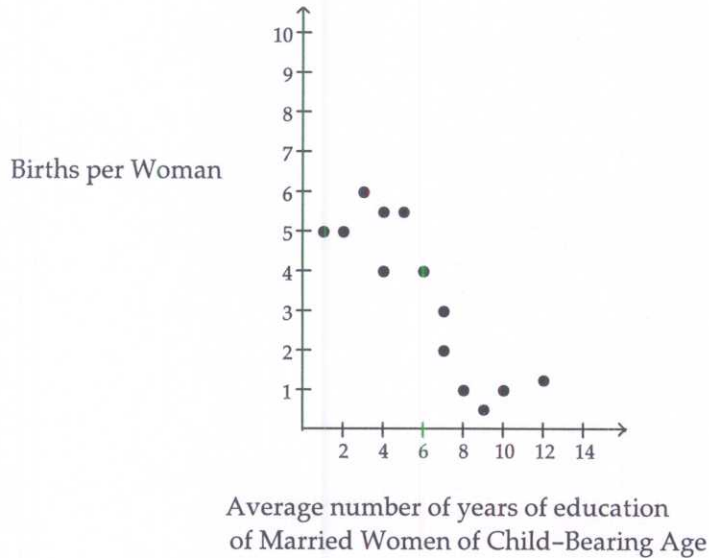
D)



The variables do not appear to be related.

The scatter plot shows the relationship between average number of years of education and births per woman of child bearing age in selected countries. Use the scatter plot to determine whether the statement is true or false.

22)



There is a strong positive correlation between years of education and births per woman.

A) True

B) False

Compute r , the correlation coefficient, rounded to the nearest thousandth, for the following data:

23)

x	8	6	1	5	4	10	3
y	5	7	13	6	9	5	12

A) 0.75

B) 0.905

C) -0.75

D) -0.905

Solve the problem.

24) The data show the number of felony convictions, in hundreds, and the crime rate, in crimes per 100,000, for seven randomly selected states. For the given data, a. determine the correlation coefficient between the number of felony convictions and the crime rate, (b) find the equation of the regression line, (c) approximate what crime rate can we anticipate in a state that has 12 hundred felony convictions.

Felony convictions	12.6	9.3	7.9	4.6	3.6	3.5	1.6
Crime rate /100,000	13.2	10.7	11.6	10.2	5.4	6.7	4.5

A) a. $r = 0.906$ b. $y = 0.777x + 4.12$ c. 13.4

B) a. $r = -0.906$ b. $y = 0.777x - 4.12$ c. 5.2

C) a. $r = 0.906$ b. $y = 4.12x + 0.777$ c. 50.2

D) a. $r = -0.906$ b. $y = -0.777x + 4.12$ c. 5.2

The correlation coefficient, r is given for a sample of n data points. Use the $\alpha = 0.05$ column in a correlation significance table to determine whether or not we may conclude that a correlation does exist in the population.

25) $n = 32$ $r = -0.395$

A) Yes, we may conclude that there is a correlation.

B) No, we may not conclude that there is a correlation.