

Name _____

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

Solve the problem. Round results to the nearest hundredth.

- 1) The mean of a set of data is 337.65 and its standard deviation is 96.01. Find the z score for a value of 422.02. 1) _____
 A) 1.18 B) 0.79 C) 0.97 D) 0.88
- 2) The mean height of a basketball team is 6.1 feet with a standard deviation of 0.2 feet. The team's center is 6.7 feet tall. Find the center's z score. Is his score unusual? 2) _____
 A) 3, yes B) 3.3, yes C) 2.55, no D) 2.5, no
- 3) The mean of a set of data is 3.77 and its standard deviation is 3.39. Find the z score for a value of 6.19. 3) _____
 A) 0.71 B) 0.78 C) 1.01 D) 0.64
- 4) A department store, on average, has daily sales of \$29,112.90. The standard deviation of sales is \$1500. On Tuesday, the store sold \$35,669.13 worth of goods. Find Tuesday's z score. Was Tuesday an unusually good day? 4) _____
 A) 4.68, yes B) 4.37, yes C) 3.50, no D) 4.59, no

Find the variance for the given data. Round your answer to one more decimal place than the original data.

- 5) 18, 17, 1, 18, and 4 5) _____
 A) 70.2 B) 98.3 C) 70.3 D) 56.2
- 6) Compute the variance. Jeanne is currently taking college zoology. The instructor often gives quizzes. On the past five quizzes, Jeanne got the following scores: 6) _____
 11 11 10 10 13
 A) 26.7 B) 1.4 C) 1.5 D) 1.2

Find the standard deviation for the given data. Round your answer to one more decimal place than the original data.

- 7) The manager of an electrical supply store measured the diameters of the rolls of wire in the inventory. The diameters of the rolls (in m) are listed below. Compute the standard deviation s. 7) _____
 0.189 0.518 0.665 0.568 0.149 0.573 0.202
 A) 1.4602 B) 1.1718 C) 0.2193 D) 0.568
- 8) 22, 29, 21, 24, 27, 28, 25, 36 8) _____
 A) 4.2 B) 4.8 C) 1.6 D) 2.8
- 9) The normal monthly precipitation (in inches) for August is listed for 12 different U.S. cities. 9) _____
 3.5 1.6 2.4 3.7 4.1 3.9
 1.0 3.6 4.2 3.4 3.7 2.2
 Compute the standard deviation.
 A) 1.09 B) 12.03 C) 1.00 D) 1.05

Find the percentile for the data point.

10) Data set: 6 3 21 15 6 15 30 27 33 9 3 30 18 3 30;
data point 21

A) 35

B) 60

C) 52

D) 70

10) _____

11) In a data set with a range of 66.5 to 121.4 and 200 observations, there are 138 data points with values less than 87.7. Find the percentile for 87.7.

A) 32

B) 424

C) 138.43

D) 69

11) _____

Solve the problem.

12) The harmonic mean is often used as a measure of center for data sets consisting of rates of change, such as speeds. It is found by dividing the number of values (n) by the sum of the reciprocals of all values, expressed as

$$\frac{n}{\sum(1/x)}$$

Pierre drives to work (a distance of 57 miles) at a speed of 73 mi/h and returns home at a speed of 53 mi/h. What is his average speed for the round trip? Use the harmonic mean.

A) 63.3 mi/h

B) 63.0 mi/h

C) 62.2 mi/h

D) 61.4 mi/h

12) _____

13) The heights of the adults in one town have a mean of 67.5 inches and a standard deviation of 3.4 inches. What can you conclude from Chebyshev's theorem about the percentage of adults in the town whose heights are between 60.7 and 74.3 inches?

A) The percentage is at least 95%

B) The percentage is at most 75%

C) The percentage is at most 95%

D) The percentage is at least 75%

13) _____

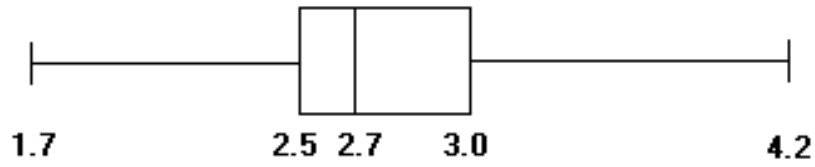
Construct a modified boxplot for the data.

14) The weights (in ounces) of 27 tomatoes are listed below. Construct a modified boxplot for the data.

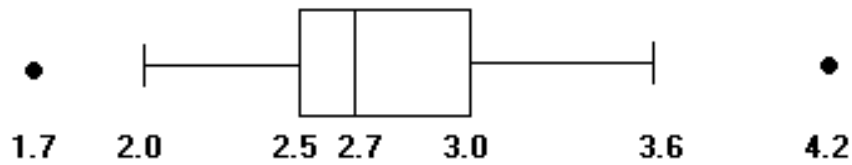
14) _____

1.7 2.0 2.2 2.2 2.4 2.5 2.5 2.5 2.6
 2.6 2.6 2.7 2.7 2.7 2.8 2.8 2.8 2.9
 2.9 2.9 3.0 3.0 3.1 3.1 3.3 3.6 4.2

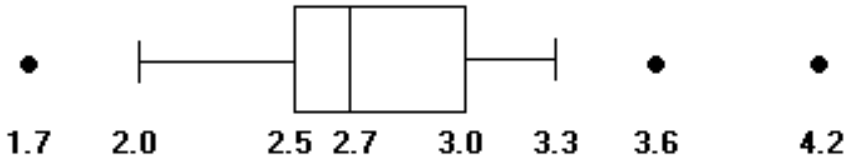
A)



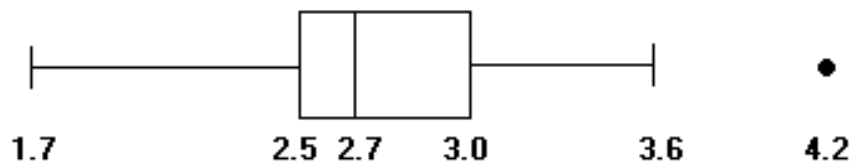
B)



C)



D)



Find the range, variance, and standard deviation for each of the two samples, then compare the two sets of results.

15) When investigating times required for drive-through service, the following results (in seconds) were obtained.

15) _____

Restaurant A	120	67	89	97	124	68	72	96
Restaurant B	115	126	49	56	98	76	78	95

A) Restaurant A: 57; 493.98; 22.23

Restaurant B: 77; 727.98; 26.98

C) Restaurant A: 57; 493.98; 24.97

Restaurant B: 70; 722.53; 26.98

B) Restaurant A: 75; 493.98; 22.23

Restaurant B: 70; 727.98; 26.98

D) Restaurant A: 57; 493.98; 22.23

Restaurant B: 56; 727.98; 32.89

Provide an appropriate response.

- 16) Suppose that all the values in a data set are converted to z-scores. Which of the statements below is true? 16) _____

A: The mean of the z-scores will be zero, and the standard deviation of the z-scores will be the same as the standard deviation of the original data values.

B: The mean and standard deviation of the z-scores will be the same as the mean and standard deviation of the original data values.

C: The mean of the z-scores will be 0, and the standard deviation of the z-scores will be 1.

D: The mean and the standard deviation of the z-scores will both be zero.

- A) A B) D C) C D) B

- 17) In a data set containing n values, the 67th percentile can be found as follows: 17) _____

$$P_{67} = \frac{67}{100} \cdot n.$$

True or false?

- A) True B) False

Determine which score corresponds to the higher relative position.

- 18) Which is better: a score of 82 on a test with a mean of 70 and a standard deviation of 8, or a score of 82 on a test with a mean of 75 and a standard deviation of 4? 18) _____

- A) Both scores have the same relative position.
B) The first 82
C) The second 82

- 19) Which score has a higher relative position, a score of 278.4 on a test for which $\bar{x} = 240$ and $s = 24$, or a score of 66 on a test for which $\bar{x} = 60$ and $s = 6$? 19) _____

- A) A score of 66
B) A score of 278.4
C) Both scores have the same relative position.

Find the mean of the data summarized in the given frequency distribution.

- 20) The test scores of 40 students are summarized in the frequency distribution below. Find the mean score. 20) _____

Score	Students
50-59	7
60-69	5
70-79	10
80-89	6
90-99	12

- A) 73.4 B) 74.5 C) 69.6 D) 77.3

Find the standard deviation of the data summarized in the given frequency distribution.

- 21) A company had 80 employees whose salaries are summarized in the frequency distribution below. Find the standard deviation. 21) _____

Salary	Employees
5,001 - 10,000	11
10,001 - 15,000	15
15,001 - 20,000	19
20,001 - 25,000	10
25,001 - 30,000	25

A) $s = 7957.1$ B) $s = 7168.6$ C) $s = 7527.0$ D) $s = 7742.1$

Find the mean for the given sample data.

- 22) The local Tupperware dealers earned these commissions last month: 22) _____
\$4302.51 \$1814.26 \$2783.74 \$3967.53
\$3942.30 \$4788.74 \$2593.47
\$4184.57 \$3071.59 \$3949.90

What was the mean commission earned? Round your answer to the nearest cent.

- A) \$3539.86 B) \$3533.86 C) \$3933.18 D) \$4424.83

Find the z-score corresponding to the given value and use the z-score to determine whether the value is unusual. Consider a score to be unusual if its z-score is less than -2.00 or greater than 2.00. Round the z-score to the nearest tenth if necessary.

- 23) A weight of 220 pounds among a population having a mean weight of 161 pounds and a standard deviation of 23.5 pounds. 23) _____
A) 2.5; unusual B) -2.5; not unusual
C) 58.8; unusual D) 2.5; not unusual

- 24) A body temperature of 96.8° F given that human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°. 24) _____
A) -2.3; not unusual B) 2.3; unusual
C) -1.4; not unusual D) -2.3; unusual

- 25) A weight of 215 pounds among a population having a mean weight of 160 pounds and a standard deviation of 23.1 pounds. 25) _____
A) 2.4; not unusual B) 55.4; unusual
C) -2.4; not unusual D) 2.4; unusual

Find the indicated measure.

- 26) The weights (in pounds) of 30 newborn babies are listed below. Find P_{16} . 26) _____
5.5 5.7 5.8 5.9 6.1 6.1 6.4 6.4 6.5 6.6
6.7 6.7 6.7 6.9 7.0 7.0 7.0 7.1 7.2 7.2
7.4 7.5 7.7 7.7 7.8 8.0 8.1 8.1 8.3 8.7
A) 5.9 B) 4.8 C) 6.0 D) 6.1

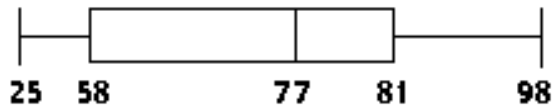
Construct a boxplot for the given data. Include values of the 5-number summary in all boxplots.

27) The test scores of 40 students are listed below. Construct a boxplot for the data set.

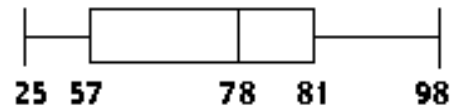
27) _____

25 35 43 44 47 48 54 55 56 57
 59 62 63 65 66 68 69 69 71 72
 72 73 74 76 77 77 78 79 80 81
 81 82 83 85 89 92 93 94 97 98

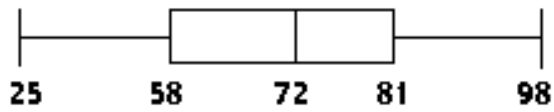
A)



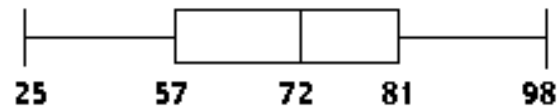
B)



C)



D)

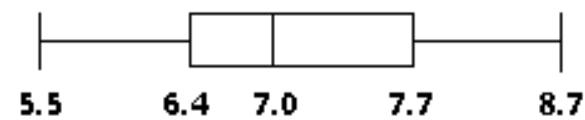


28) The weights (in pounds) of 30 newborn babies are listed below. Construct a boxplot for the data set.

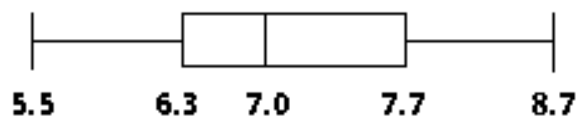
28) _____

5.5 5.7 5.8 5.9 6.1 6.1 6.3 6.4 6.5 6.6
 6.7 6.7 6.7 6.9 7.0 7.0 7.0 7.1 7.2 7.2
 7.4 7.5 7.7 7.7 7.8 8.0 8.1 8.1 8.3 8.7

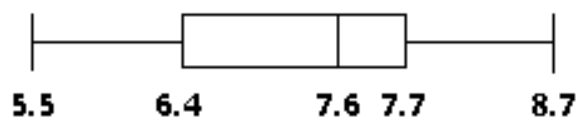
A)



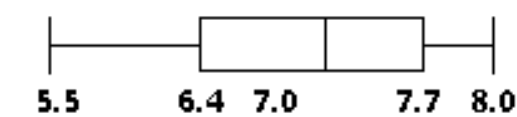
B)



C)



D)



Find the median for the given sample data.

29) A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below.

29) _____

78, 43, 228, 194, 259, 236, 235

Find the median number of newspapers sold.

A) 182 newspapers

B) 194 newspapers

C) 228 newspapers

D) 235 newspapers

Find the midrange for the given sample data.

30) 1.4 2.6 3.1 1.0 1.3 3.5 1.9 3.4 2.1 2.7 1.9

A) 2.20

B) 2.25

C) 2.1

D) 1.9

30) _____