Test#1 REVIEW K300 Vernia

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

1) After taking the first exam, 15 of the students dropped the class.

Provide an appropriate response.

2) Distinguish between qualitative and quantitative data. Give an example for each.

Identify the number as either continuous or discrete.

3) The number of limbs on a 2-year-old oak tree is 21.

Determine which of the four levels of measurement (nominal, ordinal, interval, ratio) is most appropriate.

4) Survey responses of "good, better, best".

5) Temperatures of the ocean at various depths.

Use critical thinking to address the key issue.

6) A questionnaire is sent to 10,000 persons. 5,000 responded to the questionnaire. 3,000 of the respondents say that they "love chocolate ice cream". We conclude that 60% of people love chocolate ice cream. What is wrong with this survey?

Use critical thinking to develop an alternative conclusion.

7) In a study of headache patients, every one of the study subjects with a headache was found to be improved after taking a week off of work. Conclusion: Taking time off work cures headaches.

Perform the requested conversions. Round decimals to the nearest thousandth and percents to the nearest tenth of a percent, if necessary.

8) Convert 0.4 to an equivalent fraction and percentage.

Is the study experimental or observational?

9) A political pollster reports that his candidate has a 10% lead in the polls with 10% undecided.

Identify which of these types of sampling is used: random, stratified, systematic, cluster, convenience.

10) 49, 34, and 48 students are selected from the Sophomore, Junior, and Senior classes with 496, 348, and 481 students respectively.

11) A sample consists of every 49th student from a group of 496 students.

12) A researcher interviews 19 work colleagues who work in his building.

Solve the problem.

13) The following frequency distribution analyzes the scores on a math test. Find the indicated class midpoint or boundaries.

Scores	Number of students
40-59	2
60-75	4
76-82	6
83-94	15
95-99	5

The class boundaries of scores interval 95–99

Construct the relative frequency distribution that corresponds to the given frequency distribution.

14)

Scores	Frequency
91–100	3
81–90	5
71–80	12
61–70	5
<61	2

Construct the cumulative frequency distribution that corresponds to the given frequency distribution.

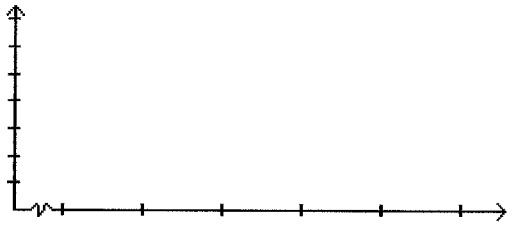
15)

Weight (oz)	Number of Stones
1.2 – 1.6	5
1.7 – 2.1	2
2.2 – 2.6	5
2.7 – 3.1	5
3.2 – 3.6	13

Solve the problem.

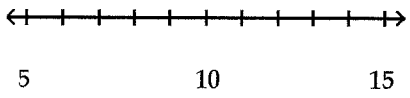
16) dThe following frequency distribution analyzes the scores on a math test. Construct a histogram using this data.

Scores	Number of students
40-59	2
60-75	4
76-82	6
83-94	15
95-99	5



Construct the dot plot for the given data.

17) A store manager counts the number of customers who make a purchase in his store each day. The data are as follows.
10 11 8 14 7 10 10 11 8 7



Find the original data from the stem-and-leaf plot.

18)

Stem	Leaves
5	1 7
6	1 1 2 7
7	1 2 2 7 9
8	2 5

Find the mean for the given sample data.

19) The local Tupperware dealers earned these commissions last month:
$4880.03 $2004.12 $2516.10 $2512.70
$2088.38 $1047.70 $2963.08
$2385.79 $2224.54 $2068.46
What was the mean commission earned? Round your answer to the nearest cent.

Find the median for the given sample data.

20) A store manager kept track of the number of newspapers sold each week over a seven-week period. The results are shown below.
95, 38, 221, 122, 258, 237, 233
Find the median number of newspapers sold.

Find the mode(s) for the given sample data.

21) 99, 57, 32, 57, 29, 99

Find the midrange for the given sample data.

22) 49 52 52 52 74 67 55 55

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

23) The highway speeds of 100 cars are summarized in the frequency distribution below. Find the mean speed. **Show all your work!!!**

Speed (mph)	Cars
30–39	3
40–49	18
50–59	52
60–69	17
70–79	10

Find the range for the given data.

24) Jeanne is currently taking college economics. The instructor often gives quizzes. On the past five quizzes, Jeanne got the following scores:
8 19 1 15 10
Compute the range.

Solve the problem.

25) A distribution of data has a maximum value of 74, a median value of 58, and a minimum of 42. Use the range rule of thumb to find the standard deviation. Round results to the nearest tenth. **Show all your work!!!**

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

26) **Show all your work!!!** 2, 6, 15, 9, 11, 22, 1, 4, 8, 19

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

27) The manager of a bank recorded the amount of time each customer spent waiting in line during peak business hours one Monday. The frequency distribution below summarizes the results. Find the standard deviation. Round your answer to one decimal place. **Show all your work!!!**

Waiting time (minutes)	Number of customer
0 - 3	12
4 - 7	15
8 - 11	7
12 - 15	15
16 - 19	0
20 - 23	1

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.

28) A test score of 82.0 on a test having a mean of 66 and a standard deviation of 10.

Determine which score corresponds to the higher relative position.

29) Which score has the higher relative position: a score of 55 on a test for which $\bar{x} = 43$ and $s = 10$, a score of 5.0 on a test for which $\bar{x} = 4$ and $s = 0.8$ or a score of 435.6 on a test for which $\bar{x} = 396$ and $s = 44$?

Find the indicated measure.

30) Use the given sample data to find Q_3.
49 52 52 52 74 67 55 55

31) The weights (in pounds) of 30 newborn babies are listed below. Find P_{16}.
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

Solve the problem. Round results to the nearest hundredth.

32) The mean of a set of data is 233.86 and its standard deviation is 110.67. Find the z score for a value of 372.76.

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.

33) A body temperature of 99.7° F given that human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°.

Provide an appropriate response.

34) Human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°. Sally's temperature can be described by $z = 1.1$. What is her temperature? Round your answer to the nearest hundredth.

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

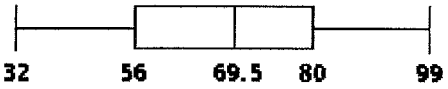
35) The test scores of 32 students are listed below. Construct a boxplot for the data set.
32 37 41 44 46 48 53 55
57 57 59 63 65 66 68 69
70 71 74 74 75 77 78 79
81 82 83 86 89 92 95 99

Answer Key
Testname: K300TEST#1REVIEW08

1) Parameter
2) Qualitative data can be separated into categories that are distinguished by nonnumeric characteristics. Quantitative data consist of numbers representing counts or measurements. Examples will vary.
3) Discrete
4) Ordinal
5) Interval
6) This is not a random sample. The survey is based on voluntary, self-selected responses and therefore has serious potential for bias.
7) Headaches generally last for only a few hours, so anything would seem like a cure. There is no evidence to suggest that taking time off work will cure a headache.
8) $\frac{2}{5}$, 40%
9) Observational
10) Stratified
11) Systematic
12) Convenience
13) 94.5, 99.5

Answer Key
Testname: K300TEST#1REVIEW08

18) 51, 57, 61, 61, 62, 67, 71, 72, 72, 77, 79, 82, 85
19) $2469.09
20) 221 newspapers
21) 99, 57
22) 61.5
23) 55.8 mph
24) 18
25) 8.0
26) 7.1
27) 5.1
28) 1.6; not unusual
29) A score of 5.0
30) 61.0
31) 6.1
32) 1.26
33) 2.4; unusual
34) 98.88°F
35)



14)

Scores	Relative Frequency
91–100	11.11%
81–90	18.52%
71–80	44.44%
61–70	18.52%
<61	7.41%

15)

Weight (oz)	Cumulative Frequency
1.2 – 1.6	5
1.7 – 2.1	7
2.2 – 2.6	12
2.7 – 3.1	17
3.2 – 3.6	30

below 1.7
below 2.2
below 2.7
below 3.2
below 3.7

17)