

Read these directions carefully. Take your time and check your work. Many students do not take enough time on the first test. You may choose exactly one problem to omit by writing "omit" for the answer. If you omit none, or more than one, all will be graded.

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

Provide an appropriate response.

1) Define a simple random sample

1) _____

2) Explain why the median is sometimes a better choice of average than the mean. Give an example.

2) _____

Use critical thinking to develop an alternative conclusion.

3) A study of achievement scores by sixth-grade students on a standardized math test showed the three top scorers were all gifted piano players. Conclusion: Playing the piano leads to mathematical achievement.

3) _____

Use the given data to construct a frequency distribution.

4) Lori asked 24 students how many hours they had spent doing homework during the previous week. The results are shown below.

4) _____

10 11 10 8 10 10 14 13 10 9 13 11
11 13 10 11 13 10 11 13 11 13 13 8

Construct a frequency distribution. Use 4 classes, a class width of 2 hours, and a lower limit of 8 for the first class.

Hours	Frequency

5) Find the 5-number summary for the following set of data. 5) _____
 The normal monthly precipitation (in inches) for August is listed for 20 different U.S. cities.
 Construct a boxplot for the data set.
 0.4 1.0 1.5 1.6 2.0
 2.2 2.4 2.7 3.4 3.4
 3.5 3.6 3.6 3.7 3.7
 3.9 4.1 4.2 4.2 7.0

6) Draw the boxplot for the data set in the previous problem. Be sure to include a horizontal scale and indicate the values of the five number summary on your plot. 6) _____

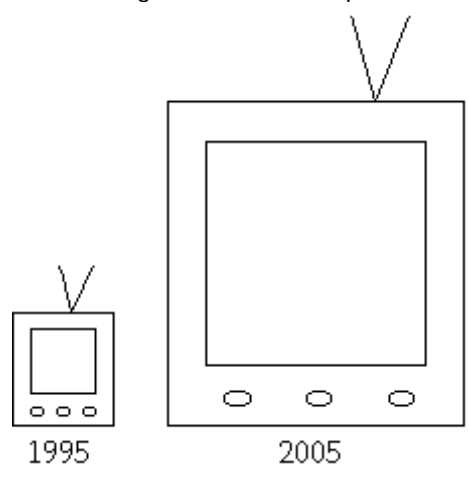
Provide an appropriate response.

7) The table below provides a frequency distribution for the winner of the Davis Cup during the period 1977-1994. 7) _____

Winner of Davis Cup	Frequency
United States	6
Germany	3
Czechoslovakia	1
Australia	3
France	1
Sweden	4

Which measure of center, the mean, the median, or the mode is most appropriate here? Why?

8) A television manufacturer sold three times as many televisions in 2005 as it did in 1995. To illustrate this fact, the manufacturer draws a graph as shown below. The television on the right is three times as tall and three times as wide as the television on the left. Why is this graph misleading? What visual impression is actually created by the graph? 8) _____



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

- 9) The following frequency distribution analyzes the scores on a math test. Find the class boundaries of scores interval 40-59. 9) _____

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

- A) 40.5, 58.5 B) 39.5, 58.5 C) 39.5, 59.5 D) 40.5, 59.5

- 10) The following frequency distribution analyzes the scores on a math test. Find the class midpoint of scores interval 40-59. 10) _____

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

- A) 49.0 B) 50.5 C) 48.5 D) 49.5

Find the mean for the given sample data.

- 11) Six college buddies bought each other Christmas gifts. They spent: 11) _____

\$155.62 \$252.77 \$157.19
\$269.53 \$271.70 \$183.61

What was the mean amount spent? Round your answer to the nearest cent.

- A) \$246.08 B) \$322.61 C) \$215.07 D) \$258.08

Find the mean for the given sample data. Unless indicated otherwise, round your answer to one more decimal place than is present in the original data values.

- 12) The amount of time (in hours) that Sam studied for an exam on each of the last five days is given below. Find the mean study time. 12) _____

1.7 7.7 8.3 1.6 5.1

- A) 4.88 hr B) 4.96 hr C) 5.45 hr D) 24.40 hr

Find the median for the given sample data.

- 13) The normal monthly precipitation (in inches) for August is listed for 20 different U.S. cities. Find the median of the data. 13) _____

3.5 1.6 2.4 3.7 4.1
3.9 1.0 3.6 4.2 3.4
3.7 2.2 1.5 4.2 3.4
2.7 0.4 3.7 2.0 3.6

- A) 3.40 in. B) 2.94 in. C) 3.50 in. D) 3.45 in.

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

14) 20 42 46 42 49 42 49

- A) 41.4 B) 46 C) 42 D) 49

14) _____

Find the midrange for the given sample data.

15) 49 52 52 52 74 67 55 55

- A) 53.5 B) 61.5 C) 12.5 D) 25

15) _____

Find the range for the given sample data.

16) Rich Borne teaches Chemistry 101. Last week he gave his students a quiz. Their scores are listed below.

30 31 47 29 32 11 48 41 50 59 37 22

- A) 59 B) 48 C) 11 D) 2

16) _____

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

17) -12 6 -3 6 12

- A) 88.9 B) 88.2 C) 88.1 D) 70.6

17) _____

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

18) The test scores of 40 students are summarized in the frequency distribution below. Find the standard deviation.

Score	Students
50-59	5
60-69	13
70-79	5
80-89	8
90-99	9

- A) 13.3 B) 14.7 C) 12.6 D) 14

18) _____

Use the range rule of thumb to estimate the standard deviation. Round results to the nearest tenth.

19) The race speeds for the top eight cars in a 200-mile race are listed below.

185.9 179.5 189.2 176.7 175.6 188.7 186.3 177.9

- A) 7.5 B) 1.1 C) 6.8 D) 3.4

19) _____

Use the empirical rule to solve the problem.

20) The amount of Jen's monthly phone bill is normally distributed with a mean of \$70 and a standard deviation of \$9. What percentage of her phone bills are between \$43 and \$97?

- A) 68% B) 95% C) 99.7% D) 99.99%

20) _____

Solve the problem.

21) 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 57.3 and 77.7 inches?

- A) The percentage is at least 99.7% B) The percentage is at most 99.7%
C) The percentage is at least 88.9% D) The percentage is at most 88.9%

21) _____

Determine which score corresponds to the higher relative position.

- 22) Which is better, a score of 92 on a test with a mean of 71 and a standard deviation of 15, or a score of 688 on a test with a mean of 493 and a standard deviation of 150? 22) _____
- A) A score of 688
B) A score of 92
C) Both scores have the same relative position.

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.

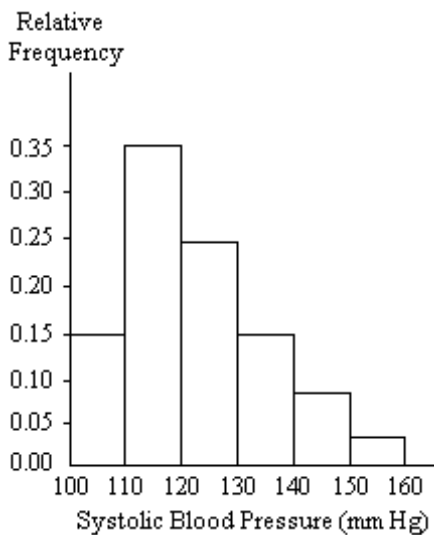
- 23) A body temperature of 99.5° F given that human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°. 23) _____
- A) 1.3; not usual B) 2.1; unusual C) -2.1; unusual D) 2.1; not unusual

Find the indicated measure.

- 24) The weights (in pounds) of 30 newborn babies are listed below. Find P_{16} . 24) _____
- 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 lb B) 6.1 lb C) 6.0 lb D) 4.8 lb

Provide an appropriate response.

- 25) A nurse measured the blood pressure of each person who visited her clinic. Following is a relative-frequency histogram for the systolic blood pressure readings for those people aged between 25 and 40. The blood pressure readings were given to the nearest whole number. Approximately what percentage of the people aged 25-40 had a systolic blood pressure reading between 110 and 139 inclusive? 25) _____



- A) 89% B) 75% C) 59% D) 39%