

This 100-point 25-problem tests. Use your time wisely. No credit will be given for answers that I can not find or read. For the multiple choice problems, write your answers in the blanks provided along the left. Good luck!

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

Determine whether the numerical value is a parameter or a statistic. Explain your reasoning.

- 1) The average salary of all assembly-line employees at a certain car manufacturer is \$ 39,000.. 1) _____

Identify the population and the sample.

- 2) A survey of 2625 elementary school children found that 28% of the children could be classified as obese. 2) _____

Provide an appropriate response.

- 3) Explain the difference between a sample and a population. 3) _____

- 4) Explain the difference between class limits and class boundaries. 4) _____

- 5) The numbers of home runs that Sammy Sosa hit in the first 15 years of his major league baseball career are listed below. Make a stem-and-leaf plot for this data. What can you conclude about the data? 5) _____

4 15 10 8 33 25 36 40 36 66 63 50 64 49 40

- 6) What is the difference between using μ and \bar{x} to represent a mean? 6) _____

- 7) A study was conducted to determine how people get jobs. Four hundred subjects were randomly selected and the results are listed below. 7) _____

Job Sources of Survey Respondents	Frequency
Newspaper want ads	72
Online services	124
Executive search firms	69
Mailings	32
Networking	103

In the space above on the right, construct a Pareto chart of the data.

- 8) A study was conducted to determine how certain families pay on their credit card balances. Two hundred families with a household annual income between \$25,000 and \$49,999 were randomly selected and the results are listed below. Construct a pie chart of the data. 8) _____

Payment schedule	Frequency
Almost always pay off balance	97
Sometimes pay off balance	41
Hardly ever pay off balance	62

- 9) Heights of adult women have a mean of 63.6 in. and a standard deviation of 2.5 in. Does Chebyshev's Theorem say about the percentage of women with heights between 58.6 in. and 68.6 in.? 9) _____

The Highway Patrol, using radar, checked the speeds (in mph) of 30 passing motorists at a checkpoint. The results are listed below.

44 38 41 50 36 36 43 42 49 48
 35 40 37 41 43 50 45 45 39 38
 50 41 47 36 35 40 42 43 48 33

- 10) Construct a relative frequency distribution using six classes. 10) _____

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

Approximate the mean of the grouped data.

11)

11) _____

Phone calls (per day)	Frequency
8-11	4
12-15	41
16-19	35
20-23	15
24-27	42

A) 19

B) 18

C) 20

D) 17

E) 27

Decide which method of data collection you would use to collect data for the study. Specify either observational study, experiment, simulation, or survey

12) A study where a drug was given to 87 patients and a placebo to another group of 87 patients to determine if the drug has an effect on a patient's illness

12) _____

A) survey

B) experiment

C) observational study

D) simulation

Identify the data set's level of measurement.

13) temperatures of 56 selected refrigerators

13) _____

A) ordinal

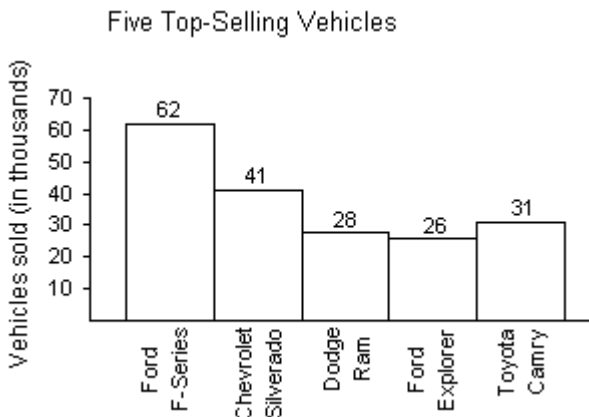
B) ratio

C) nominal

D) interval

14) the data listed on the horizontal axis in the graph

14) _____



A) nominal

B) ordinal

C) interval

D) ratio

Identify the sampling technique used.

15) At a local community college, five statistics classes are randomly selected out of 20 and all of the students from each class are interviewed.

15) _____

A) cluster

B) convenience

C) systematic

D) stratified

E) random

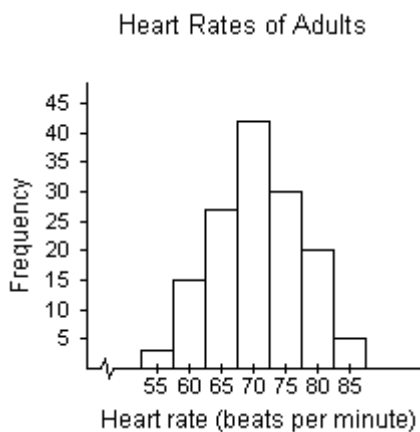
- 16) In a recent television survey, participants were asked to answer "yes" or "no" to the question "Are you in favor of the death penalty?" Six thousand five hundred responded "yes" while 4000 responded "no". There was a fifty-cent charge for the call. 16) _____
- A) systematic
 - B) convenience
 - C) random
 - D) stratified
 - E) cluster

Identify whether the statement describes inferential statistics or descriptive statistics.

- 17) Based on previous clients, a marriage counselor concludes that the majority of marriages that begin with cohabitation before marriage will result in divorce. Does this statement describe: 17) _____
- A) descriptive statistics
 - B) inferential statistics

Provide an appropriate response.

- 18) Use the histogram below to approximate the mode heart rate of adults in the gym. 18) _____



- A) 2
 - B) 42
 - C) 70
 - D) 55
- 19) The top 14 speeds, in miles per hour, for Pro-Stock drag racing over the past two decades are listed below. Find the median speed. 19) _____
- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 181.1 | 202.2 | 190.1 | 201.4 | 191.3 | 201.4 | 192.2 |
| 201.2 | 193.2 | 201.2 | 194.5 | 199.2 | 196.0 | 196.2 |
- A) 196.1
 - B) 196.7
 - C) 201.2
 - D) 195.8
- 20) The top 14 speeds, in miles per hour, for Pro-Stock drag racing over the past two decades are listed below. Find the mean speed. 20) _____
- | | | | | | | |
|-------|-------|-------|-------|-------|-------|-------|
| 181.1 | 202.2 | 190.1 | 201.4 | 191.3 | 201.4 | 192.2 |
| 201.2 | 193.2 | 201.2 | 194.5 | 199.2 | 196.0 | 196.2 |
- A) 196.1
 - B) 195.8
 - C) 201.2
 - D) 210.9

21) Find the sample standard deviation.

21) _____

22 29 21 24 27 28 25 36

- A) 4.8 B) 1.6 C) 2.8 D) 4.2

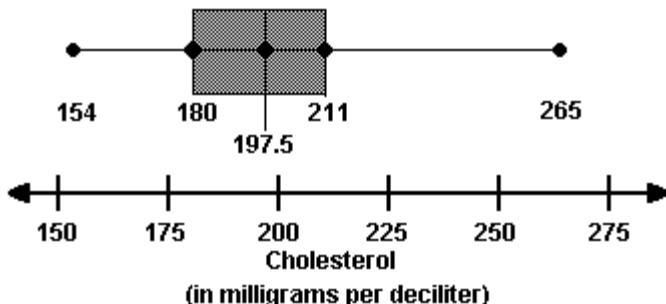
22) Lengths of pregnancies of humans are normally distributed with a mean of 268 days and a standard deviation of 12 days. Use the Empirical Rule to determine the percentage of women whose pregnancies are between 256 and 280 days.

22) _____

- A) 99.7% B) 95% C) 68% D) 50%

23) Use the box-and-whisker plot below to determine which statement is accurate.

23) _____



- A) One half of the cholesterol levels are between 180 and 211.
 B) About 25% of the adults have cholesterol levels of at most 211.
 C) One half of the cholesterol levels are between 180 and 197.5.
 D) About 75% of the adults have cholesterol levels less than 180.

24) The ages of 10 grooms at their first marriage are listed below. Find the midquartile: $(Q_1+Q_3)/2$.

24) _____

35.1 24.3 46.6 41.6 32.9 26.8 39.8 21.5 45.7 33.9

- A) 43.7 B) 34.2 C) 34.1 D) 34.5

Use the given frequency distribution to find the

- (a) class width.
 (b) class midpoints of the first class.
 (c) class boundaries of the first class.

25) Height (in inches)

25) _____

Class	Frequency, f
50 - 52	5
53 - 55	8
56 - 58	12
59 - 61	13
62 - 64	11

- A) (a) 2 B) (a) 2 C) (a) 3 D) (a) 3
 (b) 51.5 (b) 51.5 (b) 51 (b) 51
 (c) 49.5-52.5 (c) 50-52 (c) 50-52 (c) 49.5-52.5

Answer Key

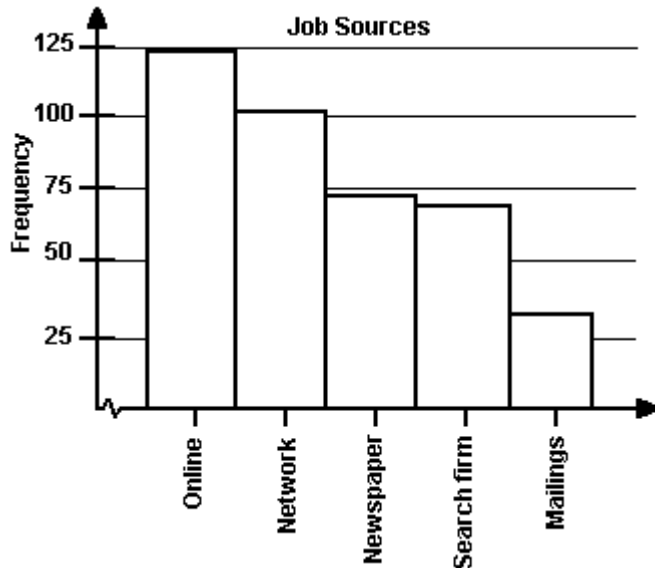
Testname: 209 SP TEST 1

- 1) It describes a parameter because the \$39,000 is based on all the workers at the car manufacturer.
- 2) population: elementary school children; sample: collection of 2625 elementary school children surveyed.
- 3) A population is the collection of *all* outcomes, responses, measurements, or counts that are of interest.. A sample is a subset of a population.
- 4) Class limits determine which numbers can belong to that class. Class boundaries are the numbers that separate classes without forming gaps between them.
- 5) Key: 0 | 4 = 4

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

Most of these years he hit 36 or more home runs.

- 6) μ represents a population mean and \bar{x} represents a sample mean.
- 7)

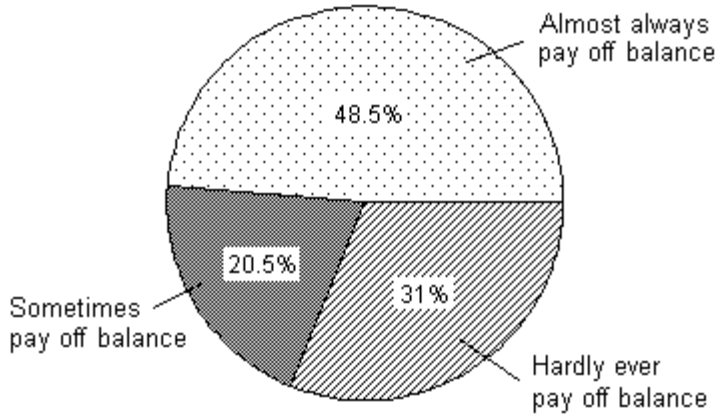


Answer Key

Testname: 209 SP TEST 1

8)

Credit Card Payment Habits



9) At least 75% of the heights should fall between 58.6 in. and 68.6 in.

10)

Speed (in mph)	Frequency	Relative Frequency	Cumulative Frequency
33-35	3	0.10	3
36-38	6	0.20	9
39-41	6	0.20	15
42-44	6	0.20	21
45-47	3	0.10	24
48-50	6	0.20	30

- 11) A
- 12) B
- 13) D
- 14) D
- 15) A
- 16) B
- 17) B
- 18) C
- 19) A
- 20) B
- 21) A
- 22) C
- 23) A
- 24) B
- 25) D