Exam

Name_____

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

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

1) A sample of 120 employees of a company is selected, and the average age is found to be 37 years. 1) _____
A) Parameter B) Statistic

2) After inspecting all of 55,000 kg of meat stored at the Wurst Sausage Company, it was found that 45,000 kg of the meat was spoiled. 2) _____
A) Statistic B) Parameter

Determine whether the given value is from a discrete or continuous data set.

3) The number of freshmen entering college in a certain year is 621. 3) _____
A) Discrete B) Continuous

4) The weight of Bill's pack as he sets off on a backpacking trip is 48.3 lb. 4) _____
A) Continuous B) Discrete

Provide an appropriate response.

5) The following frequency distribution analyzes the scores on a math test. Find the class boundaries of scores interval 95-99. 5) _____

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

A) 94.5, 100.5 B) 95.5, 100.5 C) 95.5, 99.5 D) 94.5, 99.5

6) The following frequency distribution analyzes the scores on a math test. Find the class midpoint of scores interval 40-59. 6) _____

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

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

7) The frequency distribution below summarizes the home sale prices in the city of Summerhill for the month of June. Determine the width of each class. 7) _____

(Sale price in thousand $)	Frequency
80.0 - 110.9	2
111.0 - 141.9	5
142.0 - 172.9	7
173.0 - 203.9	10
204.0 - 234.9	3
235.0 - 265.9	1

A) 30 B) 31 C) 28 D) 61

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

8) 8) _____

Speed	Number of cars
0-29	4
30-59	16
60-89	60
90-119	20

A)

Speed	Cumulative Frequency
Less than 30	100
Less than 60	80
Less than 90	82
Less than120	4

B)

Speed	Cumulative Frequency
0-29	4
30-59	20
60-89	80
90-119	100

C)

Speed	Cumulative Frequency
Less than 30	0.04
Less than 60	0.20
Less than 90	0.80
Less than120	1.00

D)

Speed	Cumulative Frequency
Less than 30	4
Less than 60	20
Less than 90	80
Less than120	100

Provide an appropriate response.

9) The frequency distribution for the weekly incomes of students with part-time jobs is given below. Construct the corresponding relative frequency distribution. Round relative frequencies to the nearest hundredth of a percent if necessary. 9) _____

Income ($)	Frequency
200-300	68
301-400	69
401-500	79
501-600	87
More than 600	11

A)

Income ($)	Relative Frequency
200-300	12.5%
301-400	20.1%
401-500	37.3%
501-600	15.2%
More than 600	14.9%

B)

Income ($)	Relative Frequency
200-300	24.76%
301-400	27.97%
401-500	3.53%
501-600	21.38%
More than 600	24.84%

C)

Income ($)	Relative Frequency
200-300	21.66%
301-400	21.97%
401-500	25.16%
501-600	27.71%
More than 600	3.50%

D)

Income ($)	Relative Frequency
201-300	15.5%
301-400	22.1%
401-500	31.3%
501-600	16.2%
More than600	14.9%

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

Use the given data to construct a frequency distribution.

10) Kevin asked some of his friends how many hours they had worked during the previous week at their after-school jobs. The results are shown below. 10) _____

6 5 6 4 6 6 9 7 6 3 7 5
5 7 6 5 7 6 5 7 5 7 7 4

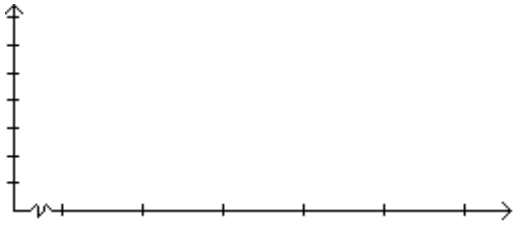
Construct a frequency distribution. Use 4 classes, a class width of 2 hours, and a lower limit of 3 for class 1.

Hours	Frequency

Provide an appropriate response.

11) In a survey, 26 voters were asked their ages. The results are shown below. Construct a histogram to represent the data (with 5 classes beginning with a lower class limit of 19.5 and a class width of 10). What is the approximate age at the center? 11) _____

43 56 28 63 67 66 52 48 37 51 40 60 62
66 45 21 35 49 32 53 61 53 69 31 48 59



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

Use the data to create a stemplot.

12) The midterm test scores for the seventh-period typing class are listed below. 12) _____

85 77 93 91 74 65 68 97 88 59 74 83 85 72 63 79

A)

5	9
6	3 5 8
7	3 5 5 8
8	2 4 4 7 9
9	1 3 7

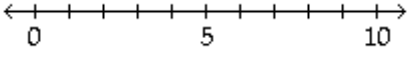
B)

5	9
6	3 5 8
7	2 4 4 7 9
8	3 5 5 8
9	1 3 7

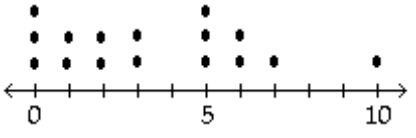
Construct the dotplot for the given data.

13) Attendance records at a school show the number of days each student was absent during the year. The days absent for each student were as follows. 13) _____

0 2 3 4 2 3 4 6 7 2 3 4 6 9 8

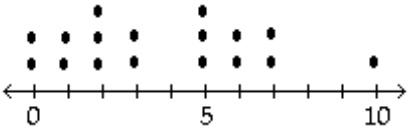


A)

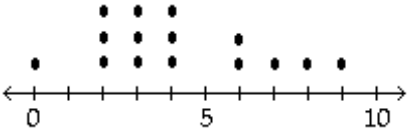


B)

C)



D)



Find the original data from the stemplot.

14) 14) _____

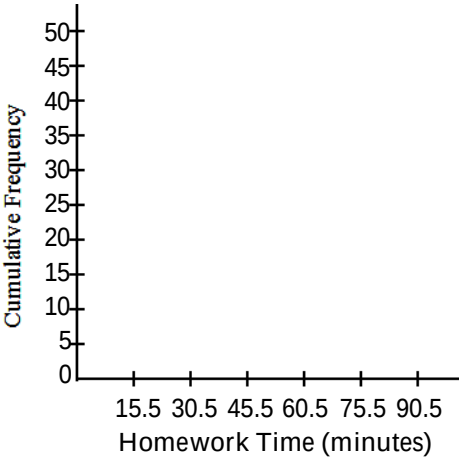
Stem	Leaves
6	5 8
7	1 8
8	5 5

A) 65, 68, 71, 71, 85, 85
B) 65, 61, 68, 71, 81, 85
C) 61, 65, 61, 78, 88, 85
D) 65, 68, 71, 78, 85, 85

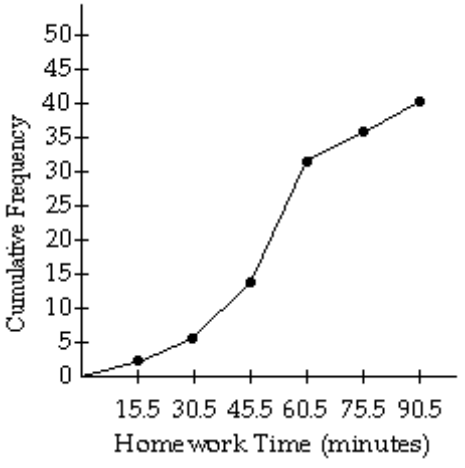
Provide an appropriate response.

15) The table contains data from a study of daily study time for 40 students from Statistics 101. Construct an ogive from the data. 15) _____

Minutes on homework	Number of students	Relative frequency	Cumulative frequency
0-15	2	0.05	2
16-30	4	0.10	6
31-45	8	0.20	14
46-60	18	0.45	32
61-75	4	0.10	36
76-90	4	0.10	40



A)



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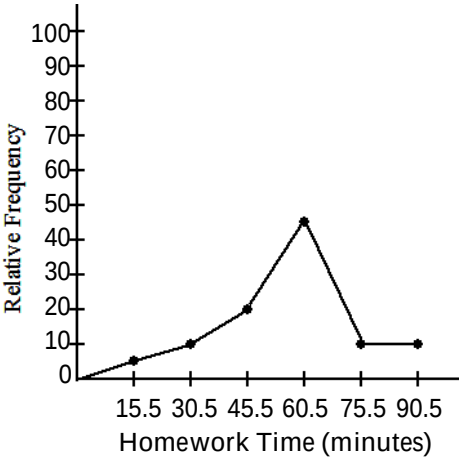
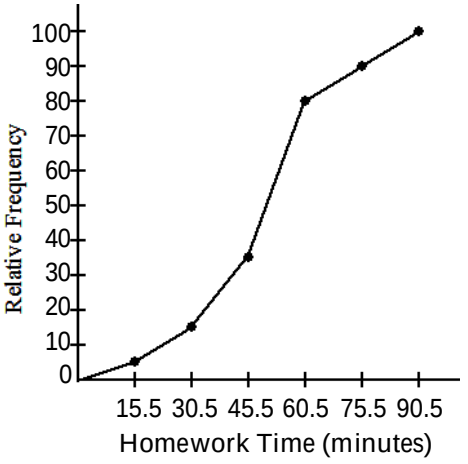
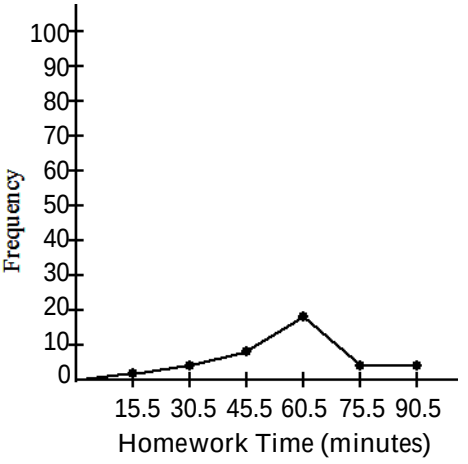


C)



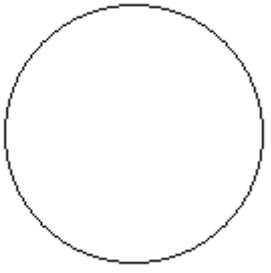
D)



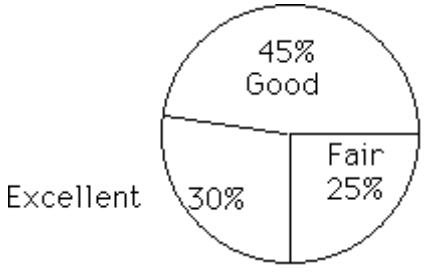
Construct a pie chart representing the given data set.

16) After reviewing a movie, 200 people rated the movie as excellent, good, or fair. The following data give the rating distribution. 16) _____

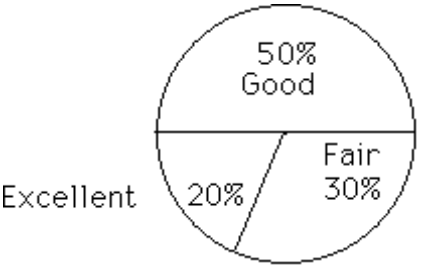
Excellent	Good	Fair
40	100	60



A)



B)



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.

17) Andrew asked seven of his friends how many cousins they had. The results are listed below. Find the mean number of cousins. 17) _____

18 10 7 14 4 3 8

A) 10.7 cousins B) 8.6 cousins C) 9.1 cousins D) 10.6 cousins

Find the median for the given sample data.

18) The ages (in years) of the eight passengers on a bus are listed below. 18) _____

6 4 25 19 26 49 36 33

Find the median age.

A) 25 yr B) 25.5 yr C) 26 yr D) 24.5 yr

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

19) -20 -43 -46 -43 -49 -43 -49 19) _____

A) -43 B) -41.9 C) -46 D) -49

Find the midrange for the given sample data.

20) 49 52 52 52 74 67 55 55 20) _____

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

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

21) The heights of a group of professional basketball players are summarized in the frequency distribution below. Find the mean height. Round your answer to one decimal place. 21) _____

Height (in.)	Frequency
70 - 71	2
72 - 73	4
74 - 75	12
76 - 77	9
78 - 79	10
80 - 81	7
82 - 83	1

A) 74.9 in. B) 78.3 in. C) 13.5 in. D) 76.5 in.

Solve the problem.

22) Michael gets test grades of 71, 76, 81, and 86. He gets a 93 on her final exam. Find the weighted mean if the tests each count for 15% and the final exam counts for 40% of the final grade. Round to one decimal place. 22) _____

A) 84.3 B) -72.7 C) 241.3 D) 81.4

Find the range for the given sample data.

23) Rich Borne teaches Chemistry 101. Last week he gave his students a quiz. Their scores are listed below. 23) _____

22 31 47 29 31 12 48 41 50 56 37 22

A) 56 B) 44 C) 9 D) 12

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

24) 19 11 12 7 11 24) _____

A) 49.0 B) 15.2 C) 19.0 D) 18.9

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

25) 14 18 13 19 16 18 20 9 16 25) _____

A) 2.0 B) 3.2 C) 3.4 D) 3.7

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

26) The heights in feet of people who work in an office are as follows. 26) _____

6.0 5.5 5.9 5.4 5.8 5.6 5.7 6.2 5.6 5.6

A) 0.5 B) 0.1 C) 1.2 D) 0.2

Use the empirical rule to solve the problem.

27) The systolic blood pressure of 18-year-old women is normally distributed with a mean of 120 mmHg and a standard deviation of 12 mmHg. What percentage of 18-year-old women have a systolic blood pressure between 96 mmHg and 144 mmHg? 27) _____

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

Solve the problem.

28) The heights of the adults in one town have a mean of 66.8 inches and a standard deviation of 3.5 inches. What can you conclude from Chebyshev's theorem about the percentage of adults in the town whose heights are between 59.8 and 73.8 inches? 28) _____

A) The percentage is at least 75% B) The percentage is at least 95%

C) The percentage is at most 75% D) The percentage is at most 95%

Solve the problem. Round results to the nearest hundredth.

29) Scores on a test have a mean of 75 and a standard deviation of 9. Michelle has a score of 84. Convert Michelle's score to a z-score. 29) _____

A) 1 B) -9 C) -1 D) 9

Find the number of standard deviations from the mean. Round your answer to two decimal places.

30) The annual snowfall in a town has a mean of 40 inches and a standard deviation of 11 inches. Last year there were 65 inches of snow. How many standard deviations from the mean is that? 30) _____

A) 2.27 standard deviations above the mean B) 0.45 standard deviations above the mean

C) 0.45 standard deviations below the mean D) 2.27 standard deviations below the mean

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.

31) A test score of 83.0 on a test having a mean of 66 and a standard deviation of 10. 31) _____

A) -1.7; not unusual B) 1.7; not unusual

C) 1.7; unusual D) 17; unusual

Determine which score corresponds to the higher relative position.

32) 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? 32) _____

A) Both scores have the same relative position.

B) A score of 688

C) A score of 92

Find the percentile for the data value.

33) Data set: 53 45 39 69 66 72 44; data value: 53 33) _____

A) 57 B) 43 C) 20 D) 50

Find the indicated measure.

34) Use the given sample data to find Q_3. 34) _____

49 52 52 52 74 67 55 55

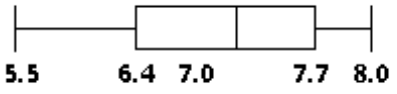
A) 55.0 B) 67.0 C) 61.0 D) 6.0

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

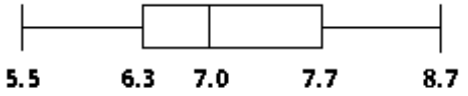
35) The weights (in pounds) of 30 newborn babies are listed below. Construct a boxplot for the data set. 35) _____

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

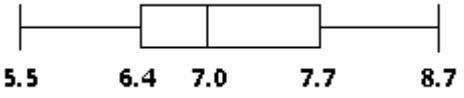
A)



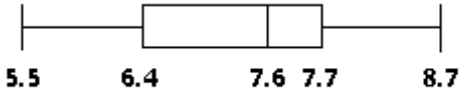
B)



C)



D)



Answer the question.

36) Which of the following cannot be a probability? 36) _____

A) $\frac{3}{5}$ B) $\frac{1}{2}$ C) $\frac{5}{3}$ D) $\frac{2}{3}$

Find the indicated probability.

37) A sample space consists of 19 separate events that are equally likely. What is the probability of each? 37) _____

A) 19 B) 0 C) $\frac{1}{19}$ D) 1

Estimate the probability of the event.

38) Of 1936 people who came into a blood bank to give blood, 200 people had high blood pressure. Estimate the probability that the next person who comes in to give blood will have high blood pressure. 38) _____

A) 0.071 B) 0.103 C) 0.022 D) 0.154

Answer the question, considering an event to be "unusual" if its probability is less than or equal to 0.05.

39) Is it "unusual" to get a 12 when a pair of dice is rolled? 39) _____

A) Yes B) No

From the information provided, create the sample space of possible outcomes.

40) Flip a coin twice. 40) _____

A) HH HT TT B) HT TH C) HH HT TH TT D) HH TT HT HT

Determine whether the events are disjoint.

41) Get a full time day job as a teller with a bank. 41) _____
Get a full time day job as a cashier at a store.

A) Yes B) No

42) Get stung by a bee. 42) _____
Get stung by a wasp.

A) Yes B) No

Find the indicated complement.

43) If $P(A) = \frac{15}{17}$, find $P(\overline{A})$. 43) _____

A) $\frac{15}{32}$ B) 0 C) $\frac{2}{17}$ D) $\frac{17}{15}$

Find the indicated probability.

44) If you pick a card at random from a well shuffled deck, what is the probability that you get a face card or a spade? 44) _____

A) $\frac{25}{52}$ B) $\frac{1}{22}$ C) $\frac{9}{26}$ D) $\frac{11}{26}$

45) A card is drawn from a well-shuffled deck of 52 cards. Find P(drawing an ace or a 9). 45) _____

A) $\frac{2}{13}$ B) 8 C) $\frac{13}{2}$ D) $\frac{4}{13}$

46) Find the probability of correctly answering the first 2 questions on a multiple choice test if random guesses are made and each question has 5 possible answers. 46) _____

A) $\frac{2}{5}$ B) $\frac{5}{2}$ C) $\frac{1}{25}$ D) $\frac{1}{32}$

47) Among the contestants in a competition are 37 women and 24 men. If 5 winners are randomly selected, what is the probability that they are all men? Round to five decimal places. 47) _____

A) 0.0821 B) 0.11483 C) 0.09751 D) 0.00714

Provide a written description of the complement of the given event.

48) Of ten adults, at least one of them has high blood pressure. 48) _____

A) All of the adults have high blood pressure.
B) Nine of the adults have high blood pressure.
C) At most one of the adults has high blood pressure.
D) None of the adults have high blood pressure.

Find the indicated probability. Round to the nearest thousandth.

49) An unprepared student makes random guesses for the ten true-false questions on a quiz. Find the probability that there is at least one correct answer. 49) _____

A) 0.999 B) 0.100 C) 0.900 D) 0.001

Find the indicated probability. Express your answer as a simplified fraction unless otherwise noted.

50) The table below shows the soft drinks preferences of people in three age groups. 50) _____

	cola	root beer	lemon-lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 years of age.

A) $\frac{1}{3}$ B) $\frac{1}{2}$ C) $\frac{3}{5}$ D) $\frac{2}{5}$