

Practice 3, Chapter 3

STA2023

Broward College

Provide an appropriate response.

1) The two most frequently used measures of central tendency are the mean and the median. Compare these two measures for the following characteristics: Takes every score into account? Affected by extreme scores? Advantages. 1) \_\_\_\_\_

2) Explain how two data sets could have equal means and modes but still differ greatly. Give an example with two data sets to illustrate. 2) \_\_\_\_\_

3) Without calculating the standard deviation, compare the standard deviation for the following three data sets. (Note: All data sets have a mean of 30.) Which do you expect to have the largest standard deviation and which do you expect to have the smallest standard deviation? Explain your answers in terms of the formula  $s = \sqrt{\frac{\sum(x - \bar{x})^2}{n - 1}}$ . 3) \_\_\_\_\_

- Set A: 30 30 30 30 30 30 30 30 30 30
- Set B: 20 25 25 30 30 30 30 35 35 40
- Set C: 20 20 20 25 25 35 35 40 40 40

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.

4) Andrew asked seven of his friends how many cousins they had. The results are listed below. Find the mean number of cousins. 4) \_\_\_\_\_

- 16 11 4 9 5 2 8

- A) 9.2 cousins                      B) 7.4 cousins                      C) 9.4 cousins                      D) 7.9 cousins

5) The students in Hugh Logan's math class took the Scholastic Aptitude Test. Their math scores are shown below. Find the mean score. 5) \_\_\_\_\_

- 588 563 357 341 526
- 344 346 644 470 482

- A) 466.1                                  B) 457.0                                  C) 475.6                                  D) 476.0

Find the median for the given sample data.

6) The temperatures (in degrees Fahrenheit) in 7 different cities on New Year's Day are listed below. Find the median temperature. 6) \_\_\_\_\_

- 17 22 39 58 67 69 85

Find the median temperature.

- A) 51°F                                  B) 58°F                                  C) 67°F                                  D) 39°F

7) The ages (in years) of the eight passengers on a bus are listed below. Find the median age. 7) \_\_\_\_\_

- 6 1 26 15 23 40 32 32

Find the median age.

- A) 24.5 yr                                  B) 23 yr                                  C) 26 yr                                  D) 21.5 yr

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

8) -20 -45 -46 -45 -49 -45 -49 8) \_\_\_\_\_

- A) -49                                      B) -46                                      C) -42.7                                      D) -45

9) 20 36 46 36 49 36 49

A) 49

B) 38.9

C) 36

D) 46

9) \_\_\_\_\_

Find the midrange for the given sample data.

10) 49 52 52 52 74 67 55 55

A) 53.5

B) 12.5

C) 25

D) 61.5

10) \_\_\_\_\_

11) 3 6 9 0 4 1 11 5 9 14 3 8 2 15 0 9

A) 15

B) 5.5

C) 7.5

D) 8

11) \_\_\_\_\_

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

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

12) \_\_\_\_\_

Score	Students
50-59	6
60-69	5
70-79	6
80-89	11
90-99	12

A) 79.0

B) 75.1

C) 74.5

D) 71.1

13) 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.

13) \_\_\_\_\_

Height (in.)	Frequency
70 - 71	3
72 - 73	5
74 - 75	15
76 - 77	8
78 - 79	15
80 - 81	5
82 - 83	3

A) 75.1 in.

B) 76.5 in.

C) 77.9 in.

D) 13.5 in.

Solve the problem.

14) Elaine gets quiz grades of 60, 86, and 78. She gets a 70 on her final exam. Find the weighted mean if the quizzes each count for 20% and the final exam counts for 40% of the final grade. Round to one decimal place.

14) \_\_\_\_\_

A) 72.3

B) 70.8

C) 72.8

D) 73.5

15) A student earned grades of C, A, B, and A. Those courses had these corresponding numbers of credit hours: 4, 6, 1, and 6. The grading system assigns quality points to letter grades as follows: A = 4, B = 3, C = 2, D = 1, and F = 0. Compute the grade point average (GPA) and round the result to two decimal places.

15) \_\_\_\_\_

A) 9.75

B) 2.25

C) 3.55

D) 3.47



Use the empirical rule to solve the problem.

- 24) 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? 24) \_\_\_\_\_  
A) 95%                      B) 68%                      C) 99.7%                      D) 99.99%

- 25) At one college, GPA's are normally distributed with a mean of 3.1 and a standard deviation of 0.6. What percentage of students at the college have a GPA between 2.5 and 3.7? 25) \_\_\_\_\_  
A) 84.13%                      B) 95%                      C) 68%                      D) 99.7%

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

- 26) The annual snowfall in a town has a mean of 39 inches and a standard deviation of 10 inches. Last year there were 64 inches of snow. How many standard deviations from the mean is that? 26) \_\_\_\_\_  
A) 2.50 standard deviations below the mean                      B) 2.50 standard deviations above the mean  
C) 0.45 standard deviations above the mean                      D) 0.45 standard deviations below the mean

- 27) Mario's weekly poker winnings have a mean of \$323 and a standard deviation of \$50. Last week he won \$177. How many standard deviations from the mean is that? 27) \_\_\_\_\_  
A) 2.92 standard deviations above the mean                      B) 2.92 standard deviations below the mean  
C) 1.46 standard deviations above the mean                      D) 1.46 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.

- 28) A test score of 50.2 on a test having a mean of 73 and a standard deviation of 12. 28) \_\_\_\_\_  
A) -22.8; unusual                      B) -1.9; not unusual  
C) 1.9; not unusual                      D) -1.9; unusual

- 29) A body temperature of 96.5° F given that human body temperatures have a mean of 98.20° F and a standard deviation of 0.62°. 29) \_\_\_\_\_  
A) -1.7; not usual                      B) -2.7; not unusual  
C) 2.7; unusual                      D) -2.7; unusual

Find the percentile for the data value.

- 30) Data set: 51 34 47 67 66 62 36; data value: 51 30) \_\_\_\_\_  
A) 57                      B) 43                      C) 50                      D) 20

- 31) Data set: 12 6 42 24 12 30 54 54 66 18 6 54 36 6 54; data value: 42 31) \_\_\_\_\_  
A) 60                      B) 52                      C) 70                      D) 35

Find the indicated measure.

- 32) Use the given sample data to find  $Q_3$ . 32) \_\_\_\_\_  
49 52 52 52 74 67 55 55  
A) 55.0                      B) 67.0                      C) 61.0                      D) 6.0

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

33) \_\_\_\_\_

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) 6.1 lb                      B) 6.0 lb                      C) 5.9 lb                      D) 4.8 lb

34) The weights (in pounds) of 30 newborn babies are listed below. Find  $Q_1$ .

34) \_\_\_\_\_

5.5 5.7 5.8 6.0 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) 6.3 lb                      B) 7.5 lb                      C) 5.8 lb                      D) 6.4 lb

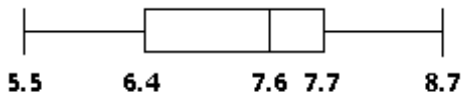
Construct a boxplot for the given data. Include values of the 5-number summary in all boxplots.

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

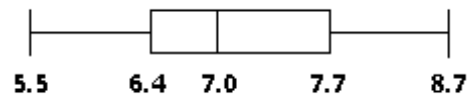
35) \_\_\_\_\_

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)



Provide an appropriate response.

36) Describe any similarities or differences in the two distributions represented by the following boxplots. Assume the two boxplots have the same scale.

36) \_\_\_\_\_

