

Essentials of Statistics for The Behavioral Sciences
9th edition Gravetter Test Bank

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TRUE/FALSE

1 : A student takes a 10-point quiz each week in statistics class. If the students quiz scores for the first three weeks are 2, 6, and 10, then the mean score is $M = 9$.

A : true

B : false

Correct Answer : B

2 : A sample of $n = 6$ scores has $X = 48$. This sample has a mean of $M = 8$.

A : true

B : false

Correct Answer : A

3 : A sample of $n = 8$ scores has a mean of $M = 16$. For this sample, $X = 2$.

A : true

B : false

Correct Answer : B

4 : A sample with a mean of $M = 20$ has $X = 120$. There are $n = 6$ scores in the sample.

A : true

B : false

Correct Answer : A

5 : For the scores in the following frequency distribution table, the mean is $M = 3$.
X f 4 1 3 4 2 2

A : true

B : false

Correct Answer : B

6 : The mean is considered to be the balance point for a distribution because exactly half of the scores are located above the mean and exactly half are below the mean.

A : true

B : false

Correct Answer : B

7 : In a sample of $n = 3$ scores, if two scores are each below the mean by 2 points, then the third score is above the mean by 4 points.

A : true

B : false

Correct Answer : A

8 : A sample has a mean of $M = 40$. If a new score of $X = 35$ is added to the sample, then the sample mean would increase.

A : true

B : false

Correct Answer : B

9 : A sample has $n = 7$ scores with a mean of $M = 9$. If one individual with a score of $X = 3$ is removed from the sample, the new mean will be $M = 10$.

A : true
B : false

Correct Answer : A

10 : After adding 6 points to every score in a sample, the new mean is found to be $M = 18$. The mean for the original sample was $M = 24$.

A : true
B : false

Correct Answer : B

11 : Adding a new score to a distribution will always change the value of the mean.

A : true
B : false

Correct Answer : B

12 : Changing the value of a score in a distribution will always change the value of the mean.

A : true
B : false

Correct Answer : B

13 : A sample of $n = 6$ scores has a mean of $M = 9$. If one individual with a score of $X = 4$ is removed from the sample, the new mean will be $M = 10$.

A : true
B : false

Correct Answer : A

14 : A sample of $n = 7$ scores has a mean of $M = 5$. After one new score is added to the sample, the new mean is calculated to be $M = 6$. The new score was $X = 13$.

A : true
B : false

Correct Answer : A

15 : A sample of $n = 8$ scores has a mean of $M = 20$. After one score is removed from the sample, the mean is calculated to be $M = 23$. The removed score must have a value greater than 20.

A : true
B : false

Correct Answer : B

16 : A sample of $n = 10$ scores has a mean of 50. A second sample has $n = 5$ scores and $M = 60$. If the two samples are combined, the combined sample mean will be greater than 55.

A : true

B : false

Correct Answer : B

17 : For a 100-point exam, a score of $X = 65$ is definitely above the median.

A : true

B : false

Correct Answer : B

18 : If a sample has an odd number of scores, at least one individual will have a score exactly equal to the median.

A : true

B : false

Correct Answer : A

19 : A sample has $n = 5$ scores: 2, 4, 5, 8, and 11. The median for the sample is 6.5.

A : true

B : false

Correct Answer : B

20 : For any distribution of scores, at least one individual will have a score exactly equal to the mean.

A : true

B : false

Correct Answer : B

21 : It is possible for a distribution to have more than one mode.

A : true

B : false

Correct Answer : A

22 : It is possible to have a distribution of scores where no individual has a score exactly equal to the mode.

A : true

B : false

Correct Answer : B

23 : For a set of scores measured on an ordinal scale, the median is preferred to the mean as a measure of central tendency.

A : true

B : false

Correct Answer : A

24 : There are situations for which it is either impossible to compute a mean or the mean does not provide a central, representative value.

A : true

B : false

Correct Answer : A

25 : For a severely skewed distribution, the median often provides a better measure of central tendency than the mean.

A : true

B : false

Correct Answer : A

26 : For a distribution with one or two extreme scores, the median is usually a more representative value than the mean.

A : true

B : false

Correct Answer : A

27 : It is impossible for the value of the mode to be greater than the value of the mean.

A : true

B : false

Correct Answer : B

28 : A distribution of scores has a mean of 50, a median of 53, and a mode of 56. Based on this information, it appears that the distribution is negatively skewed.

A : true

B : false

Correct Answer : A

29 : If a negatively skewed distribution has a mean of 50, then the median and the mode are probably both greater than 50.

A : true

B : false

Correct Answer : A

30 : For a positively skewed distribution, the mean usually has a larger value than either the median or the mode.

A : true

B : false

Correct Answer : A

SHORT RESPONSE

31 : What is the purpose for obtaining a measure of central tendency?

Correct Answer : The purpose of a measure of central tendency is to identify the center of the distribution and find the single score that best represents the entire distribution.?

32 : Explain why it is necessary to have more than one standard procedure for defining and measuring central tendency.

Correct Answer : No single method for measuring central tendency will produce a good, representative value in every situation. Although the mean works well in most situations, there are circumstances in which the mean is not representative or cannot be calculated.?

33 : A set of $n = 3$ scores has a mean of $M = 10$. Another set of scores has $n = 7$ and $M = 6$. If these two sets of scores are combined, what is the mean for the combined group?

Correct Answer : For the combined sample, $n = 10$, $\Sigma X = 72$, and $M = 7.2$?

34 : A sample of $n = 7$ scores has a mean of $M = 11$. If one score with a value of $X = 5$ is removed from the sample, what is the mean for the remaining scores?

Correct Answer : The original sample had $n = 7$ scores. $\Sigma X = 77$. When the score is removed, there are $n = 6$ scores with $\Sigma X = 72$. The new mean is $M = 12$?

35 : A sample of $n = 6$ scores has a mean of $M = 8$. One new score is added to the sample, and the new mean is computed to be $M = 7$. What is the value of the score that was added to the sample?

Correct Answer : The original sample had $n = 6$ scores. $\Sigma X = 48$. After the new score is added, there are $n = 7$ scores with $\Sigma X = 49$. Because the sum increased by 1 point, the new score must be $X = 1$?

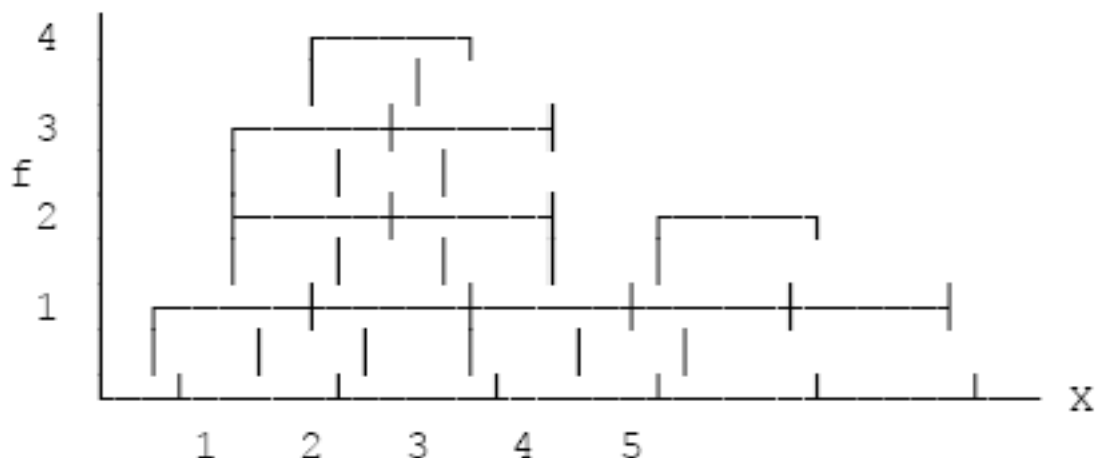
36 : Compute the mean, median, and mode for the set of scores shown in the following frequency distribution table. X f 7 1 6 2 5 3 4 4 3 1 2 0 1 1

Correct Answer : The mean is $54/12 = 4.5$, the median is 4.5, and the mode is 4.?

37 : For the following sample of scores, 1, 1, 2, 2, 2, 2, 4, a. find the mean, median, and mode. b. if a new individual with a score of $X = 2$ is added to the sample, what happens to the values for the mean, the median, and the mode? c. if the score $X = 4$ in the original distribution is changed to $X = 11$, what happens to the values for the mean, the median, and the mode?

Correct Answer : a. The mean, median, and mode are all equal to 2. b. Adding a score of $X = 2$ does not change the mean, the median, or the mode. c. Changing $X = 4$ to $X = 11$ causes the mean to change to $M = 3$. The median and the mode are still equal to 2.?

38 :



Find the

mean, the median, and the mode for the set of scores in the frequency distribution histogram below.

Correct Answer : Mean = $33/11 = 3$, the median = 3, the mode = 3.?

MULTIPLE CHOICE

39 : What is the mean for the following sample of scores? Scores: 1, 4, 5, 6

A : 16

B : 8

C : 4.5

D : 4

Correct Answer : D

40 : My electric bills for June, July, and August last summer were \$75, \$75, and \$150, respectively. What was the mean amount for the three bills?

A : \$75

B : \$100

C : \$125

D : \$150

Correct Answer : B

41 : What is the mean for the following scores? Scores: 4, 6, 14

A : 12

B : 8

C : 7

D : 6

Correct Answer : B

42 : A population of $N = 8$ scores has $X = 40$. What is the population mean?

A : 320

B : 20

C : 5

D : .2

Correct Answer : C

43 : What is the mean for the population of scores shown in the frequency distribution table?X

f5 24 13 32 2 1 2

A : $15/5 = 3$

B : $15/10 = 1.50$

C : $29/5 = 5.80$

D : $29/10 = 2.90$

Correct Answer : D

44 : What is the mean for the population of scores shown in the frequency distribution table?X

f5 14 23 32 41 2

- A : $15/5 = 3$
- B : $15/12 = 1.25$
- C : $32/5 = 6.60$
- D : $32/12 = 2.67$

Correct Answer : D

45 : A population with a mean of $\mu = 6$ has $\Sigma X = 54$. How many scores are in the population?

- A : $N = 9$
- B : $N = 27$
- C : $N = 6 \cdot 54 = 324$
- D : Cannot be determined from the information given

Correct Answer : A

46 : A sample of $n = 5$ scores has a mean of $M = 12$. What is ΣX for this sample?

- A : $12/5 = 2.40$
- B : $5/12 = 0.417$
- C : $5(12) = 60$
- D : Cannot be determined from the information given

Correct Answer : C

47 : After 5 points are subtracted from every score, the sample mean is found to be $M = 24$. What was the mean for the original sample?

- A : 29
- B : 24
- C : 19
- D : Cannot determine without knowing the number of scores in the sample

Correct Answer : A

48 : After every score in a sample is multiplied by 3, the mean is calculated and found to be $M = 21$. What was the mean for the original scores?

- A : 7
- B : 21
- C : 63
- D : Cannot be determined from the information given

Correct Answer : A

49 : A population has a mean of $\mu = 30$. If 3 points are added to each score, what is the mean for the new distribution?

- A : 27
- B : 30
- C : 33
- D : Cannot be determined from the information given

Correct Answer : C

50 : A sample has a mean of $M = 90$. If each score in the sample is multiplied by 5, then what is the mean for the new distribution?

- A : 18

B : 85
C : 95
D : 450

Correct Answer : D

51 : One sample with $n = 4$ scores has a mean of $M = 12$, and a second sample with $n = 6$ scores has a mean of $M = 8$. If the two samples are combined, what is the mean for the combined set of scores?

A : 4.8
B : 9.6
C : 10.0
D : 19.2

Correct Answer : B

52 : A sample of $n = 8$ scores has a mean of $M = 10$. After one score is removed from the sample, the mean for the remaining score is found to be $M = 11$. What was the score that was removed?

A : $X = 3$
B : $X = 7$
C : $X = 8$
D : Cannot be determined from the information provided

Correct Answer : A

53 : A sample of $n = 6$ scores has a mean of $M = 5$. One person with a score of $X = 12$ is added to the distribution. What is the mean for the new set of scores?

A : $M = 5$
B : $M = 6$
C : $M = 7$
D : $M = 8$

Correct Answer : B

54 : In a sample of $n = 6$ scores, the smallest score is $X = 3$, the largest score is $X = 10$, and the mean is $M = 6$. If the largest score is changed from $X = 10$ to $X = 22$, then what is the value of the new mean?

A : The mean is still $M = 6$
B : The mean is $M = 7$
C : The mean is $M = 8$
D : Cannot be determined from the information given

Correct Answer : C

55 : A distribution of scores has a mean of $= 50$. One new score is added to the distribution, and the new mean is found to be $= 48$. From this result, you can conclude that the new score was _____.

A : greater than 50
B : less than 50
C : equal to 48
D : cannot answer from the information given

Correct Answer : B

56 : Which of the following actions will always change the value of the mean?

- A : Changing the value of one score
- B : Adding a new score to the distribution
- C : Removing a score from the distribution
- D : All 3 of the other choices are correct

Correct Answer : A

57 : A set of $N = 4$ scores has a mean of $\mu = 11$. If 8 points are subtracted from one of the scores, what is the new value for the population mean?

- A : 13
- B : 11
- C : 10
- D : 9

Correct Answer : D

58 : A set of $N = 8$ scores has a mean of $\mu = 11$. If 16 points are added to one of the scores, what is the new value for the population mean?

- A : 10
- B : 11
- C : 12
- D : 13

Correct Answer : D

59 : A sample has a mean of $M = 40$. If 10 points are added to one of the scores, what is the new value for the sample mean?

- A : Still 40
- B : 41
- C : 50
- D : Cannot be determined from the information given

Correct Answer : D

60 : A sample has a mean of $M = 86$. If one new person is added to the sample, what effect will it have on the sample mean?

- A : The sample mean will increase.
- B : The sample mean will decrease.
- C : The sample mean will remain the same.
- D : Cannot be determined from the information given

Correct Answer : D

61 : A sample of $n = 5$ scores has a mean of $M = 12$. One new score is added to the sample, and the new mean is calculated to be $M = 11$. What is the value of new score?

- A : $X = 5$
- B : $X = 6$
- C : $X = 12$
- D : $X = 60$

Correct Answer : B

62 : A population of $N = 10$ scores has a mean of $\bar{X} = 6$. After one score is removed, the mean is found to be $\bar{X} = 5$. What is the value of the score that was removed?

A : $X = 10$

B : $X = 5$

C : $X = 3$

D : $X = 15$

Correct Answer : D

63 : One sample has $n = 4$ scores and $M = 10$. A second sample has $n = 8$ scores and $M = 4$. If the two samples are combined, what is the mean for the combined sample?

A : $72/12 = 6$

B : $14/5 = 2.8$

C : $14/12 = 1.167$

D : Cannot be determined with the information given

Correct Answer : A

64 : A sample of $n = 4$ scores has a mean of $M = 8$. If one new score with a value of $X = 3$ is added to the sample, what will be the value for the new mean?

A : $M = 7$

B : $M = 8$

C : $M = 8.75$

D : Cannot be determined with the information provided

Correct Answer : A

65 : A population of $N = 7$ scores has a mean of $\bar{X} = 10$. If one score with a value of $X = 4$ is removed from the population, what is the value for the new mean?

A : $70/6$

B : $66/7$

C : $66/6 = 11$

D : Cannot be determined from the information given

Correct Answer : C

66 : In a population of $N = 6$, five of the individuals all have scores that are exactly 1 point above the mean. From this information, what can you determine about the score for the 6th individual?

A : It is also above the mean by 1 point.

B : It is below the mean by 1 point.

C : It is below the mean by 5 points.

D : There is not enough information to describe the 6th score.

Correct Answer : C

67 : What is the value of the median for the following set of scores? Scores: 1, 3, 4, 6, 8, 12, 13, 23, 25, 26

A : 7

B : 8

C : 10

D : 12.5

Correct Answer : C

68 : What is the median for the following set of scores? Scores: 1, 2, 6, 11, 17

- A : 4
- B : 6
- C : 8.5
- D : 8

Correct Answer : B

69 : What is the median for the population of scores shown in the frequency distribution table?
X f5 14 23 32 41 2

- A : 2.5
- B : 3
- C : 3.5
- D : 4

Correct Answer : A

70 : What is the median for the set of scores shown in the frequency distribution table?
X f5 14 13 2 2 3 1 4

- A : 1
- B : 1.5
- C : 2
- D : 2.5

Correct Answer : C

71 : Which of the following statements cannot be true for a distribution of scores?

- A : 60% of the scores are above the mean.
- B : 60% of the scores are above the median.
- C : 60% of the scores are above the mode.
- D : All of the other options are false statements.

Correct Answer : B

72 : What is the mode for the following sample of $n = 8$ scores? Scores: 0, 1, 1, 1, 2, 2, 3, 3

- A : 1
- B : 1.5
- C : $13/8 = 1.625$
- D : 3

Correct Answer : A

73 : What is the mode for the population of scores shown in the frequency distribution table?
X f5 14 23 32 41 2

- A : 2
- B : 3
- C : 3.5
- D : 4

Correct Answer : A

74 : Which of the following statements cannot be true for a distribution of scores?

- A : No one has a score exactly equal to the mean.
- B : No one has a score exactly equal to the median.
- C : No one has a score exactly equal to the mode.
- D : All of the other options are false statements.

Correct Answer : C

75 : Which of the following statements is true?

- A : It is possible for a distribution to have two means.
- B : It is possible for a distribution to have two medians.
- C : It is possible for a distribution to have two modes
- D : It is possible for a distribution to have two medians or two modes.

Correct Answer : C

76 : A researcher measures eye color for a sample of $n = 50$ people. Which measure of central tendency would be appropriate to summarize the measurements?

- A : Mean
- B : Median
- C : Mode
- D : Any of the three measures could be used

Correct Answer : C

77 : A researcher is measuring the amount of time needed to solve a set of anagrams for a sample of $n = 15$ students. However, one of the participants fails to solve the problems so the researcher has an undetermined score. What is the best measure of central tendency for these data?

- A : The mean
- B : The median
- C : The mode
- D : Central tendency cannot be determined for these data

Correct Answer : A

78 : One item on a questionnaire asks students how many times in a typical week they eat at a fast-food restaurant. The responses for a sample of $n = 10$ students are summarized in the frequency distribution. What is the best measure of central tendency for these data?

X	f
5	24
33	22
11	10
1	1

- A : the mean
- B : the median
- C : the mode
- D : Central tendency cannot be determined for these data.

Correct Answer : B

79 : Under what circumstances is the median likely to produce a better measure of central tendency than the mean?

- A : With a symmetrical distribution
- B : With an extremely skewed distribution
- C : When the data consist of nominal measurements

D : When the data are numerical scores from an interval or a ratio scale

Correct Answer : B

80 : What is the preferred measure of central tendency for scores measured on an ordinal scale?

A : The mean

B : The median

C : The mode

D : Central tendency cannot be determined for ordinal data

Correct Answer : B

81 : A population of scores has a mean of $\mu = 26$, a median of 23, and a mode of 22. What is the most likely shape for the population distribution?

A : Symmetrical

B : Positively skewed

C : Negatively skewed

D : Cannot be determined from the information given

Correct Answer : B

82 : What is the most likely shape for a distribution with a mean of 40 and a mode of 45?

A : Symmetrical

B : Positively skewed

C : Negatively skewed

D : Either positively or negatively skewed

Correct Answer : C

83 : For a perfectly symmetrical distribution with $\mu = 30$, what is the mode?

A : 30

B : Greater than 30

C : Less than 30

D : Cannot be determined from the information given

Correct Answer : D

84 : For a positively skewed distribution with a mean of $M = 20$, what is the most probable value for the median?

A : Greater than 20

B : Less than 20

C : 20

D : Cannot be determined from the information given

Correct Answer : B

85 : For a positively skewed distribution with a mode of $X = 20$ and a median of 25, what is the most likely value for the mean?

A : Greater than 25

B : Less than 20

C : Between 20 and 25

D : Cannot be determined from the information given

Correct Answer : A

86 : A distribution is positively skewed. Which is the most probable order, from smallest to largest, for the three measures of central tendency?

A : Mean, median, mode

B : Mode, median, mean

C : Mean, mode, median

D : Median, mean, mode

Correct Answer : B

87 : For a perfectly symmetrical distribution with a median of 30, what is the value of the mean?

A : 30

B : Greater than 30

C : Less than 30

D : Cannot be determined from the information given

Correct Answer : A

88 : For a perfectly symmetrical distribution, which relationship is always true?

A : Mean = median

B : Mean = mode

C : Median = mode

D : Mean = median = mode

Correct Answer : A