Chapter 2: Computing and Understanding Averages: Means to an End
Test Bank

MULTIPLE CHOICE

1. This is the value that best represents an entire group of scores:
   a. Mean
   b. Median
   c. Mode
   d. Average

   ANS: D PTS: 1 DIF: Easy
   REF: Computing and Understanding Averages
   OBJ: Understanding measures of central tendency COG: Knowledge

2. Which of the following is NOT a measure of central tendency?
   a. Median
   b. Mode
   c. Standard deviation
   d. Mean

   ANS: C PTS: 1 DIF: Easy
   REF: Computing and Understanding Averages
   OBJ: Understanding measures of central tendency COG: Application

3. This measure of central tendency can be considered the most precise:
   a. Mode
   b. Median
   c. Mean
   d. Average

   ANS: C PTS: 1 DIF: Easy REF: When To Use What
   OBJ: Understanding measures of central tendency COG: Knowledge

4. This measure of central tendency can be considered the least precise:
   a. Median
   b. Mode
   c. Mean
   d. Other

   ANS: B PTS: 1 DIF: Easy REF: Computing the Mode
   OBJ: Understanding measures of central tendency COG: Knowledge

5. What should be used to determine central tendency?
   a. A correlation
   b. A graph
   c. The standard deviation
   d. The average

   ANS: D PTS: 1 DIF: Easy
   REF: Computing and Understanding Averages
   OBJ: Understanding measures of central tendency COG: Application

6. This consists of the middle point of a set of values:
   a. Mean
   b. Median
   c. Mode
   d. Other

   ANS: B PTS: 1 DIF: Easy REF: Computing the Median
   OBJ: Understanding measures of central tendency COG: Knowledge

7. What is the most common average computed?
   a. Mode
   b. Mean
   c. Variance
   d. Median

   ANS: B PTS: 1 DIF: Easy REF: Computing the Mean
   OBJ: Understanding measures of central tendency COG: Knowledge

8. What is the symbol used to represent the mean?
   a. N
   b. n
   c. $\overline{x}$
   d. X

   ANS: C PTS: 1 DIF: Easy REF: Computing the Mean
   OBJ: Understanding measures of central tendency COG: Knowledge

9. What is another term for the mean?
   a. Midpoint
   b. Frequency
   c. Arithmetic average
   d. Distribution

   ANS: C PTS: 1 DIF: Easy
   REF: And Now . . . Using Excel's Average Function
   OBJ: Understanding measures of central tendency COG: Knowledge

10. What value is most often used to represent an entire group of scores?
    a. Mode
    b. N
    c. Median
    d. Mean

    ANS: D PTS: 1 DIF: Easy REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Knowledge

11. If a distribution is "significantly distorted," what is this called?
    a. Variability
    b. Outliers
    c. Skew
    d. Percentile

ANS: C PTS: 1 DIF: Easy REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Comprehension

12. What is another way of describing “measures of central tendency”?
    a. Statistical measures
    b. Measures of variability
    c. Averages
    d. Deviation scores

    ANS: C PTS: 1 DIF: Easy
    REF: Computing and Understanding Averages
    OBJ: Understanding measures of central tendency COG: Knowledge

13. What is the formula for computing the mean?
    a. $\Sigma X + n$
    b. $\Sigma Y / X$
    c. $\Sigma X / n$
    d. $\Sigma N + y$

    ANS: C PTS: 1 DIF: Medium REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Knowledge

14. This is calculated by multiplying values by the frequency of their occurrence, adding the total of all the products, and then dividing by the total number of occurrences:
    a. Mean
    b. Arithmetic mean
    c. Mode
    d. Weighted mean

    ANS: D PTS: 1 DIF: Medium
    REF: Computing a Weighted Mean OBJ: Understanding measures of central tendency
    COG: Knowledge

15. Which of the following symbols represents the individual score?
    a. X
    b. n
    c. N
    d. Σ

    ANS: A PTS: 1 DIF: Easy REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Knowledge

16. What does the Σ symbol represent?
    a. The mean
    b. The sum of values
    c. The sample size
    d. An individual score

    ANS: B PTS: 1 DIF: Easy REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Knowledge

17. What is the name of the letter Σ?

a. Phi
b. Rho
c. Sigma
d. Alpha

ANS: C PTS: 1 DIF: Easy REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Knowledge

18. Which of the following symbols represents sample size?
a. X
b. y
c. n
d. M

ANS: C PTS: 1 DIF: Easy REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Knowledge

19. What does the symbol M represent?
a. Population size
b. Sample Size
c. Mean
d. Individual score

ANS: C PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Average Function
OBJ: Understanding measures of central tendency COG: Knowledge

20. If you know M = 5, and the sum of scores is 20, what is n?
a. 4
b. .25
c. 100
d. Need more information

ANS: A PTS: 1 DIF: Medium REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Application

21. If $\sum X = 4{,}390$ and n = 4, what is M?
a. 17,560
b. .0100
c. 1097.5
d. Need more information

ANS: C PTS: 1 DIF: Medium REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Application

22. What is the mean value for the following scores: 10, 35, 40, 60, 55, 25, 50?
a. 45
b. 44.17
c. 40
d. 39.29

ANS: D PTS: 1 DIF: Medium REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Application

23. What is the mean value of the following scores: 12, 25, 15, 27, 32, 8?
    a. 19.83
    b. 21.24
    c. 20.00
    d. 19.98

    ANS: A PTS: 1 DIF: Medium REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Application

24. What is the mean value of the following scores: 1.11, 1.17, 1.15, 2.02, 2.07, 3.11, 2.14?
    a. 2.14
    b. 2.07
    c. 1.74
    d. 1.82

    ANS: D PTS: 1 DIF: Medium REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Application

25. What is the mean value of the following scores: 117, 132, 147, 156, 196?
    a. 151.2
    b. 149.6
    c. 147.0
    d. 148.7

    ANS: B PTS: 1 DIF: Medium REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Application

26. Your current exam mean is 97.2. If you receive a 99 on the next exam, this will have the effect of
    a. Increasing your mean
    b. Decreasing your mean
    c. Having no effect on your mean
    d. Cannot be determined

    ANS: A PTS: 1 DIF: Hard REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Analysis

27. Your current exam mean is 93.2. If you receive an 87 on the next exam, this will have the effect of
    a. Increasing your mean
    b. Decreasing your mean
    c. Having no effect on your mean
    d. Cannot determine

    ANS: B PTS: 1 DIF: Hard REF: Computing the Mean
    OBJ: Understanding measures of central tendency COG: Analysis

28. Your current exam mean is 95. If you receive a 95 on the next exam, this will have the effect of
    a. Increasing your mean
    b. Decreasing your mean

c. Having no effect on your mean
d. Cannot be determined

ANS: C PTS: 1 DIF: Hard REF: Computing the Mean
OBJ: Understanding measures of central tendency COG: Analysis

29. Which measure of central tendency is most influenced by outliers?
a. Median
b. Mode
c. Mean
d. Variance

ANS: C PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Median Function
OBJ: Understanding measures of central tendency COG: Knowledge

30. What does the large N represent?
a. Sample size
b. Population size
c. Sum of scores
d. Mean score

ANS: B PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Average Function
OBJ: Understanding measures of central tendency COG: Knowledge

31. What does the small n represent?
a. Sample size
b. Population size
c. Sum of scores
d. Mean score

ANS: A PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Average Function
OBJ: Understanding measures of central tendency COG: Knowledge

32. Which measure of central tendency is also known as the midpoint for a set of scores?
a. Mode
b. Mean
c. Median
d. Sum

ANS: C PTS: 1 DIF: Easy REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Knowledge

33. For which of the following is the sum of the deviations from the mean always equal to zero?
a. Harmonic mean
b. Arithmetic mean
c. Standard deviation
d. Variance

ANS: B PTS: 1 DIF: Hard
REF: And Now . . . Using Excel's Average Function

OBJ: Understanding measures of central tendency COG: Knowledge

34. What are Greek letters used to represent?
    a. Population parameters
    b. Sample data
    c. Sample statistics
    d. Outliers

    ANS: A PTS: 1 DIF: Easy
    REF: And Now . . . Using Excel's Average Function
    OBJ: Understanding measures of central tendency COG: Knowledge

35. The letter μ would be used to represent (a) _____.
    a. Population parameter
    b. Sample statistic
    c. Inferential data
    d. Outliers

    ANS: A PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Average Function
    OBJ: Understanding measures of central tendency COG: Comprehension

36. What are Roman letters used to represent?
    a. Population parameters
    b. Sample statistics
    c. Sample data
    d. Outliers

    ANS: B PTS: 1 DIF: Medium
    REF: Computing a Weighted Mean OBJ: Understanding measures of central tendency
    COG: Knowledge

37. The letter X with a bar over it is used to represent (a) _____.
    a. Outliers
    b. Sample statistic
    c. Population parameter
    d. Inferential statistics

    ANS: B PTS: 1 DIF: Medium
    REF: Computing a Weighted Mean OBJ: Understanding measures of central tendency
    COG: Knowledge

38. Which of the following defines the *median*?
    a. Sum of all values in a group
    b. Most frequently occurring value
    c. Average variability in a set of scores
    d. Midpoint in a set of scores

    ANS: D PTS: 1 DIF: Easy REF: Computing the Median
    OBJ: Understanding measures of central tendency COG: Knowledge

39. What is the median for the following amounts: $11.75, $12.75, $13.00, $10.75, $11.50, $10.50, $10.75?

a. $11.50
b. $11.75
c. $11.57
d. $11.00

ANS: A PTS: 1 DIF: Medium REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Application

40. What is the median for the following amounts: $13,400; $17,560; $45,440; $68,550; $96,400?
a. $13,400
b. $48,240
c. $45,440
d. $96,400

ANS: C PTS: 1 DIF: Medium REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Application

41. What is the median of the following set of scores: 23, 17, 15, 32, 38, 47?
a. 23
b. 32
c. 17.4
d. 27.5

ANS: D PTS: 1 DIF: Medium REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Application

42. What is the median of the following set of scores: 1.3, 4.7, 2.3, 3.3, 3.0, 2.9?
a. 2.95
b. 3.05
c. 2.90
d. 3.00

ANS: A PTS: 1 DIF: Medium REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Application

43. When there is an even number of scores, how is the median calculated?
a. Average the two middle scores.
b. Use the smaller of the two middle scores.
c. Use the larger of the two middle scores.
d. The median cannot be calculated.

ANS: A PTS: 1 DIF: Easy REF: Computing the Median
OBJ: Understanding measures of central tendency COG: Comprehension

44. With regard to percentile points, what is the median also known as?
a. Q1
b. Q2
c. Q3
d. Q4

ANS: B PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Median Function
OBJ: Understanding measures of central tendency COG: Knowledge

45. What is the 25th percentile also known as?
    a. Q1
    b. Q2
    c. Q3
    d. Q4

    ANS: A PTS: 1 DIF: Easy
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Knowledge

46. What is the 75th percentile also known as?
    a. Q1
    b. Q2
    c. Q3
    d. Q4

    ANS: C PTS: 1 DIF: Easy
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Knowledge

47. Market researchers sent out a survey to college students in Ohio to assess their preferences in regard to three different brands of honey. When examining the average preference of the respondents, which measure of central tendency is most likely to be used to describe them?
    a. Median
    b. Mean
    c. Mode
    d. Cannot be determined

    ANS: C PTS: 1 DIF: Medium REF: When To Use What
    OBJ: Selecting a measure of central tendency COG: Application

48. What impact do extreme scores have on the median?
    a. Positive skew
    b. Negative skew
    c. Minimal impact
    d. Nullify the value

    ANS: C PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Comprehension

49. Which of the following are used to define the percentage of cases equal to and below a certain point in a distribution of scores?
    a. T scores
    b. Q points
    c. Standard scores
    d. Percentile points

    ANS: D PTS: 1 DIF: Easy
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Knowledge

50. A test score in the 97th percentile would be considered _____.
    a. Very high
    b. Very low
    c. About average
    d. Cannot be determined

    ANS: A PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Comprehension

51. A test score in the third percentile would be considered _____.
    a. Very high
    b. Very low
    c. About average
    d. Cannot be determined

    ANS: B PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Comprehension

52. A test score in the 47th percentile would be considered _____.
    a. Very high
    b. Very low
    c. About average
    d. Cannot be determined

    ANS: C PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Understanding measures of central tendency COG: Comprehension

53. If you were to calculate the average of individual income, and you found many extreme scores, which measure of central tendency should be used?
    a. Mean
    b. Median
    c. Mode
    d. Standard error

    ANS: B PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Selecting a measure of central tendency COG: Application

54. If you were to calculate the average of individual income, and you found no outliers, which measure of central tendency should you use?
    a. Mode
    b. Median
    c. Mean
    d. Other

    ANS: C PTS: 1 DIF: Medium
    REF: And Now . . . Using Excel's Median Function
    OBJ: Selecting a measure of central tendency COG: Application

55. What does the term *skew* mean?

a. Significantly distort
b. Divide
c. Add
d. Equalize

ANS: A PTS: 1 DIF: Easy
REF: And Now . . . Using Excel's Median Function
OBJ: Understanding measures of central tendency COG: Knowledge

56. Which of the following sets of data illustrates skew?
a. 2, 3, 5, 7, 9
b. 450, 472, 523, 547, 601
c. 23, 37, 42, 51, 147
d. 12, 14, 15, 17, 19

ANS: C PTS: 1 DIF: Medium
REF: And Now . . . Using Excel's Median Function
OBJ: Understanding measures of central tendency COG: Application

57. What would be your preferred measure of central tendency if you had the following data: $32,400; $42,500; $47,250; $49,570; $145,850?
a. Mean
b. Median
c. Mode
d. Weighted mean

ANS: B PTS: 1 DIF: Medium
REF: And Now . . . Using Excel's Median Function
OBJ: Selecting a measure of central tendency COG: Analysis

58. What would be your preferred measure of central tendency if you had the following data: $31,550; $33,750; $34,700; $37,550; $39,275?
a. Mean
b. Mode
c. Median
d. Average

ANS: A PTS: 1 DIF: Medium
REF: And Now . . . Using Excel's Median Function
OBJ: Selecting a measure of central tendency COG: Analysis

59. What would be your preferred measure of central tendency if you had the following data: 23 Americans, 57 Mexicans, and 14 Canadians?
a. Mean
b. Weighted mean
c. Median
d. Mode

ANS: D PTS: 1 DIF: Medium REF: Computing the Mode
OBJ: Selecting a measure of central tendency COG: Analysis

60. What would be your preferred measure of central tendency if you had the following data: 57 males and 23 females?

a. Median
b. Weighted mean
c. Mean
d. Mode

ANS: D PTS: 1 DIF: Medium REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Analysis

61. Which of the following best describes the mode?
a. Sum of all values in a group
b. Midpoint in a set of scores
c. Number of subject collected
d. Most frequently occurring value(s)

ANS: D PTS: 1 DIF: Easy REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Knowledge

62. The mode will always consist of the following:
a. The number of cases in the category
b. The name of the category
c. The format of the category
d. The size of the category

ANS: B PTS: 1 DIF: Easy REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Knowledge

63. What is the mode of the following data: 47 Republicans, 49 Democrats, and 52 independents?
a. 52
b. Republicans
c. Democrats
d. Independents

ANS: D PTS: 1 DIF: Medium REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Application

64. What is the mode of the following data: 57 males and 43 females?
a. 57
b. Males
c. Females
d. Cannot be determined

ANS: B PTS: 1 DIF: Medium REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Application

65. What is the mode of the following data: 52 bowls of spaghetti, 37 bowls of cereal, 14 sandwiches, and 17 personal pizzas?
a. Bowls of cereal
b. Sandwiches
c. 52
d. Bowls of spaghetti

ANS: D PTS: 1 DIF: Medium REF: Computing the Mode
OBJ: Understanding measures of central tendency COG: Application

66. Which of the following represents a bimodal distribution?
    a. 23 males and 14 females
    b. 43 New Yorkers, 14 Kentuckians, and 7 Wyomingites
    c. 23 professors and 22 researchers
    d. 14 individuals with blonde hair and 8 individuals with brown hair

    ANS: C PTS: 1 DIF: Hard
    REF: And Now . . . Using Excel's Mode.SNGL Function
    OBJ: Understanding measures of central tendency COG: Application

67. When describing a set of nominal data, a researcher should use which of the following measures of central tendency?
    a. Mode
    b. Median
    c. Standard deviation
    d. Mean

    ANS: A PTS: 1 DIF: Medium REF: Computing the Mode
    OBJ: Selecting a measure of central tendency COG: Analysis

68. This is another word for a single observation:
    a. A data point
    b. Data
    c. A sample
    d. A population

    ANS: A PTS: 1 DIF: Easy
    REF: Sigma Freud and Descriptive Statistics
    OBJ: Understanding measures of central tendency COG: Knowledge

69. Which of the following measures of central tendency is the least precise representation of a group of scores?
    a. Mode
    b. Median
    c. Mean
    d. Average

    ANS: A PTS: 1 DIF: Easy REF: Computing the Mode
    OBJ: Understanding measures of central tendency COG: Knowledge

TRUE/FALSE

1. While there are three measures of central tendency, the mean, median, and mode are all interchangeable anyway.

    ANS: F PTS: 1 DIF: Easy
    REF: Computing and Understanding Averages
    OBJ: Understanding measures of central tendency COG: Comprehension

2. A researcher should use the mode as a measure of central tendency when the data are qualitative in nature.

ANS: T PTS: 1 DIF: Easy REF: When To Use What
OBJ: Selecting a measure of central tendency COG: Comprehension

SHORT ANSWER

1. Why is the mean the most frequently used measure of central tendency?

   ANS:
   When the distribution of scores is free of outliers (i.e., extreme scores), the mean tends to be the most precise measure of central tendency.

   PTS: 1 DIF: Medium REF: And Now . . . Using Excel's Median Function
   OBJ: Selecting a measure of central tendency COG: Comprehension

2. What is the formula for calculating the mean? What does each of the symbols represent?

   ANS:
   $\Sigma X / n$, where Σ represents summation, X represents individual scores, and n represents the sample size.

   PTS: 1 DIF: Medium REF: Computing the Mean
   OBJ: Understanding measures of central tendency COG: Knowledge

3. What is meant by the term outlier?

   ANS:
   An outlier refers to any extreme scores in a data set.

   PTS: 1 DIF: Medium REF: And Now . . . Using Excel's Average Function
   OBJ: Understanding measures of central tendency COG: Comprehension

4. When might the median be the more appropriate measure of central tendency over the mean?

   ANS:
   When there are extreme scores in a distribution, calculating the mean would result in skewed results. The median provides a more accurate measure of the average.

   PTS: 1 DIF: Hard REF: When To Use What
   OBJ: Selecting a measure of central tendency COG: Application

5. What does the term *bimodal* mean?

   ANS:
   Bimodal refers to a distribution of scores that has two different modes, or two scores that occur most frequently.

   PTS: 1 DIF: Medium REF: Apple Pie a la Bimodal
   OBJ: Understanding measures of central tendency COG: Comprehension

6. When is the mode the best measure of central tendency to use?

ANS:
The mode should be used when working with categorical or nominal data (ex. gender).

PTS: 1 DIF: Medium REF: When To Use What
OBJ: Selecting a measure of central tendency COG: Application

7. How would you calculate a weighted mean?

ANS:
First, list all values in the sample. Second, list the frequency associated with each value. Third, multiply the value by its frequency. Fourth, sum all "Value x Frequency." Fifth and finally, divide by total frequency or n.

PTS: 1 DIF: Hard REF: Computing a Weighted Mean
OBJ: Understanding measures of central tendency COG: Comprehension