1.

Award: **1.00 point**

i. A value that is typical or representative of the data is referred to as a measure of central tendency.
ii. The arithmetic mean is the sum of the observations divided by the total number of observations
iii. The value of the observation in the center after they have been arranged in numerical order is called the weighted mean

○ (i), (ii), and (iii) are all correct statements

→ ○ (i) and, (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements but not (i).

○ (i), (ii), and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-01 Explain the concept of central tendency.	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.
Difficulty: Hard	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-04 Determine the median.

Using the information gathered for real estate prices in Regina and surrounding areas in the early 2000's, determine the mean of the selling prices at that time.

List Prices, Regina and surrounding area

List Price (x000)	Frequency	M	f*M	M^2 * f
50 to under 100	14	75	1050	78750
100 to under 150	23	125	2875	359375
150 to under 200	16	175	2800	490000
200 to under 250	18	225	4050	911250
250 to under 300	8	275	2200	605000
300 to under 350	5	325	1625	528125
350 to under 400	4	375	1500	562500
400 to under 450	2	425	850	361250

→ ○ $188,330

○ $200,000

○ $125,000

○ $178,350

○ $195,600

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

3.

Using the information gathered for real estate prices in Regina and surrounding areas in the early 2000's, determine the median of the selling prices at that time.

List Prices, Regina and surrounding area

List Price (x000)	Frequency	M	f*M	M^2 * f
50 to under 100	14	75	1050	78750
100 to under 150	23	125	2875	359375
150 to under 200	16	175	2800	490000
200 to under 250	18	225	4050	911250
250 to under 300	8	275	2200	605000
300 to under 350	5	325	1625	528125
350 to under 400	4	375	1500	562500
400 to under 450	2	425	850	361250

- ○ $188,330
- ○ $200,000
- ○ $125,000
- → ○ $175,000
- ○ $195,600

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

4.

Using the information gathered for real estate prices in Regina and surrounding areas in the early 2000's, determine the standard deviation of the selling prices at that time.

List Prices, Regina and surrounding area

List Price (x000)	Frequency	M	f*M	M^2 * f
50 to under 100	14	75	1050	78750
100 to under 150	23	125	2875	359375
150 to under 200	16	175	2800	490000
200 to under 250	18	225	4050	911250
250 to under 300	8	275	2200	605000
300 to under 350	5	325	1625	528125
350 to under 400	4	375	1500	562500
400 to under 450	2	425	850	361250

○ $88,330

○ $20,000

○ $25,000

○ $78,350

→ ○ $88,939

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

5.

Award: **1.00 point**

A sample of light trucks using diesel fuel revealed the following distribution based on fuel efficiency, i.e., litres per 100 km.

Litres/100km	Number of Trucks
6 to under 9	2
9 to under 12	5
12 to under 15	10
15 to under 18	8
18 to under 21	3
21 to under 24	2

What is the arithmetic mean in litres per 100 km?

○ 16.9

→ ○ 14.6

○ 17.0

○ 17.9

○ Mean cannot be estimated.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

The ages of newly hired, unskilled employees were grouped into the following distribution:

Ages	Number
18 to under 21	4
21 to under 24	8
24 to under 27	11
27 to under 30	20
30 to under 33	7

What is the median age?

- ○ 28.50
- ○ 28.08
- ○ 25.08
- → ○ 27.14
- ○ 20.00

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

A sample of the daily production of transceivers was organized into the following distribution.

Daily Production	Frequencies
80 to under 90	5
90 to under 100	9
100 to under 110	20
110 to under 120	8
120 to under 130	6
130 to under 140	2

What is the mean daily production?

○ 86.4

○ 101.4

○ 111.4

→ ○ 106.4

○ 20.0

References

Multiple Choice   Difficulty: Medium   Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

Award: **1.00 point**

The net sales of a sample of small stamping plants were organized into the following percent frequency distribution.

Net Sales (in $millions)	Percent of Total
1 to under 4	13
4 to under 7	14
7 to under 10	40
10 to under 13	23
13 or more	10

What is the mean net sales (in $millions)?

○ $7.09

○ $10.09

○ $8.59

○ $8.34

→ ○ Mean cannot be computed

A stockbroker placed the following order for a customer:

-50 shares of Kaiser Aluminum preferred at $104 a share
-100 shares of GTE preferred at $25 1/4 a share
-20 shares of Boston Edison preferred at $9 1/8 a share

What is the weighted arithmetic mean price per share?

○ $25.25

○ $79.75

○ $103.50

○ $42.75

→ ○ Weighted mean cannot be computed for this data set.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

10.

During the past six months, the purchasing agent bought:

Tons of Coal	1,200	3,000	500
Price per Ton	$28.50	$87.25	$88.00

What is the weighted arithmetic mean price per ton?

- ○ $87.25
- → ○ $72.33
- ○ $68.47
- ○ $89.18
- ○ Weighted mean cannot be computed for this data set.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

11.

A sample of single persons receiving social security payments revealed these monthly benefits: $826, $699, $1,087, $880, $839 and $965. How many observations are below the median?

- ○ 0
- ○ 1
- ○ 2
- → ○ 3

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-04 Determine the median.

12.

The number of work stoppages in a highly industrialized region for selected months are: 6, 0, 10, 14, 8 and 0. What is the median number of stoppages?

- ○ 0
- ○ 6
- → ○ 7
- ○ 8

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-04 Determine the median. |

13.

The Federal Aviation Administration reported that passenger revenues on international flights increased from $528 million in 1977 to $5,100 million in 2000. What is the geometric mean annual percent increase in international passenger revenues?

- ○ 10.4
- ○ 27.9
- → ○ 103.6
- ○ 9.96
- ○ None of the choices are correct.

References

| **Multiple Choice** | Difficulty: Hard | Learning Objective: 03-05 Identify the mode. |

14.

The Investment Company Institute reported in its Mutual Fund Fact Book that the number of mutual funds increased from 410 in 1990 to 857 in 2000. What is the geometric mean annual percent increase in the number of funds?

- ○ 1.12
- → ○ 7.65
- ○ 19.41
- ○ 48.66

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-05 Identify the mode.

15.

Assume a student received the following grades for the semester: History, B; Statistics, A; Spanish, C; and English, C. History and English are 5 credit hour courses, Statistics a 4 credit hour course and Spanish a 3 credit hour course. If 4 grade points are assigned for an A, 3 for a B and 2 for a C, what is the weighted mean for the semester grades?

- ○ 4.00
- ○ 1.96
- → ○ 2.76
- ○ 3.01
- ○ 2.88

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

16.

Production of passenger cars in Japan increased from 3.94 million in 1990 to 6.74 million in 2000. What is the geometric mean annual percent increase?

- ○ 4.0
- ○ 1.9
- → ○ 5.5
- ○ 16.6
- ○ 47.3

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-05 Identify the mode.

17.

A sample of the paramedical fees charged by clinics revealed these amounts: $55, $49, $50, $45, $52 and $55. What is the median charge?

- ○ $47.50
- → ○ $51.00
- ○ $52.00
- ○ $55.00
- ○ $48.00

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

18.

Award: **1.00 point**

The lengths of time (in minutes) several underwriters took to review applications for similar insurance coverage are: 50, 230, 52 and 57. What is the median length of time required to review an application?

→ ○ 54.5

○ 141.0

○ 97.25

○ 109.0

○ $$55.40

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

19.

Award: **1.00 point**

The U.S. Department of Education reported that for the past six years 23, 19, 15, 30, 27 and 25 women received doctorate degrees in computer and information sciences. What is the mean arithmetic annual number of women receiving this degree?

○ 15.1

→ ○ 23.2

○ 37.9

○ 22.9

○ $22.3

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

A bottling company offers three kinds of delivery service - instant, same day and within five days. The profit per delivery varies according to the kind of delivery. The profit for an instant delivery is less than the other kinds because the driver has to go directly to a grocery store with a small load and return to the bottling plant. To find out what effect each type of delivery has on the profit picture, the company has made the following tabulation based on deliveries for the previous quarter.

Type of Delivery	Number of Deliveries During the Quarter	Profit per Delivery
Instant	100	$ 70
Same day	60	100
Within five days	40	160

What is the weighted mean profit per delivery?

- ○ $72
- ○ $100
- ○ $142
- → ○ $97
- ○ $99

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

21.

The U.S. Department of Education reported that for the past seven years 4,033, 5,652, 6,407, 7,201, 8,719, 11,154, and 15,121 people received bachelor's degrees in computer and information sciences. What is the arithmetic mean annual number receiving this degree?

- ○ About 12,240
- → ○ About 8,327
- ○ About 6,217
- ○ About 15,962
- ○ About 8,399

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

22.

Which measure of central tendency is found by arranging the data from low to high, and selecting the middle value?

- ○ Arithmetic mean
- → ○ Median
- ○ Mode
- ○ Geometric mean

References

Multiple Choice	Learning Objective: 03-01 Explain the concept of central tendency.
Difficulty: Easy	Learning Objective: 03-04 Determine the median.

23.

The number of students at a local university increased from 2,500 students 5000 students in 10 years. Based on a geometric mean, the university grew at an average percentage rate of

- ○ 2,500 students per year
- ○ 1.071 students per year
- → ○ 7.1 percent per year
- ○ 250 students per year
- ○ Cannot be determined

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-05 Identify the mode.

24.

A question in a market survey asks for a respondent's favourite car colour. Which measure of central tendency should be used to summarize this question?

- → ○ Mode
- ○ Median
- ○ Mean
- ○ Geometric mean
- ○ Weighted mean

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-05 Identify the mode.

25.

AAA Heating and Air Conditioning completed 30 jobs last month with a mean revenue of $5,430 per job. The president wants to know the total revenue for the month.

- ○ Insufficient information to estimate.
- ○ $5,430
- ○ $54,330
- → ○ $162,900
- ○ $169,200

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-02 Identify and compute the arithmetic mean.

26.

Three persons earn $8 an hour, six earn $9 an hour, and one earns $12 an hour. Find the weighted mean hourly wage.

- ○ $8
- → ○ $9
- ○ $12
- ○ $6
- ○ $10

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

27.

Which one of the following is referred to as the population mean?

- ○ Statistic
- → ○ μ
- ○ Sample
- ○ Σ

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-01 Explain the concept of central tendency.

28.

If there are an odd number of observations in a set of ungrouped data that have been arrayed from low to high or vice versa, where is the median located?

- ○ n
- ○ n/2
- → ○ (n + 1)/2
- ○ n + 1/2

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

29.

For which measure of central tendency will the sum of the deviations of each value from that average always be zero?

- ○ Mode
- → ○ Mean
- ○ Median
- ○ Geometric mean
- ○ The sum of the deviations of each value from that average will always be zero for all measures of central tendency.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-04 Determine the median.

Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	Learning Objective: 03-05 Identify the mode.

30.

Which measure of central tendency is used to determine the average annual percent increase?

- ○ Arithmetic mean
- ○ Weighted mean
- ○ Mode
- → ○ Geometric mean
- ○ Median

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-05 Identify the mode.

31.

Fifteen accounting majors had an average grade of 90 on a finance exam. Seven marketing majors averaged 85, while ten finance majors averaged 93 on the same exam. What is the weighted mean for the 32 students taking the exam?

→ ○ 89.84

○ 89.33

○ 89.48

○ Impossible to determine without more information

○ $89.88

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

32.

On a survey questionnaire, students were asked to indicate their class rank in college. If there were only four choices from which to choose, which measure(s) of central tendency would be appropriate to use for the data generated by that questionnaire item?

○ Mean and median

○ Mean and mode

→ ○ Mode and median

○ Mode only

○ Median only

References

Multiple Choice	Learning Objective: 03-04 Determine the median.

Difficulty: Medium	Learning Objective: 03-05 Identify the mode.

33.

What is the median of 26, 30, 24, 32, 32, 31, 27 and 29?

- ○ 32
- ○ 29
- ○ 30
- → ○ 29.5
- ○ 30.5

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

34.

The net incomes (in $millions) of a sample of steel fabricators are: $86, $67, $86 and $85. What is the modal net income?

- ○ $67
- ○ $85
- ○ $85.5
- → ○ $86
- ○ $84

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-05 Identify the mode.

35.

i. A parameter is a measurable characteristic of a sample.
ii. The weighted mean is the nth root of n observations.
iii. A statistic is a measurable characteristic of the population.

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and, (iii) are correct statements but not (i).

→ ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-01 Explain the concept of central tendency.	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

Difficulty: Hard	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Award: **1.00 point**

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
2000	27 500	44 500	61.7
2001	27 600	44 400	62.1
2002	27 900	44 400	62.8
2003	27 600	44 800	62.9
2004	27 900	44 000	63.5
2005	28 600	44 700	64.0
2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What are the median earnings for women for the years 1999-2008?

○ $27,000

○ $27,600

→ ○ $27,900

○ $28,320

○ $28,600

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

37.

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
2000	27 500	44 500	61.7
2001	27 600	44 400	62.1
2002	27 900	44 400	62.8
2003	27 600	44 800	62.9
2004	27 900	44 000	63.5
2005	28 600	44 700	64.0
2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What are the mean earnings for women for the years 1999-2008?

○ $27,000

○ $27,600

○ $27,900

→ ○ $28,320

○ $28,600

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-01 Explain the concept of central tendency. |

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
2000	27 500	44 500	61.7
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2005	28 600	44 700	64.0
2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What were the modal earnings for women for the years 1999-2008?

○ $27,000

→ ○ $27,600

○ $27,900

○ $28,320

○ $28,600

References

Multiple Choice   Difficulty: Medium   Learning Objective: 03-05 Identify the mode.

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
2000	27 500	44 500	61.7
2001	27 600	44 400	62.1
2002	27 900	44 400	62.8
2003	27 600	44 800	62.9
2004	27 900	44 000	63.5
2005	28 600	44 700	64.0
2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What were the median earnings for men for the years 1999-2008?

○ $43,000

○ $44,400

○ $44,500

→ ○ $44,600

○ $44,700

References

Multiple Choice   Difficulty: Medium   Learning Objective: 03-04 Determine the median.

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
2000	27 500	44 500	61.7
2001	27 600	44 400	62.1
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2003	27 600	44 800	62.9
2004	27 900	44 000	63.5
2005	28 600	44 700	64.0
2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What were the mean earnings for men for the years 1999-2008?

○ $43,000

○ $44,400

○ $44,500

○ $44,600

→ ○ $44,700

Award: **1.00 point**

Listed below is the average earnings ratio by sex for full-year, full-time workers from 1999 to 2008. (Source: Adapted from Statistics Canada-*see Connect for data file.*)

Year	Women	Men	Earnings Ratio (%)
1999	$27 000	$43 000	62.6
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2006	29 000	44 800	64.7
2007	29 900	45 500	65.7
2008	30 200	46 900	64.5

What were the modal earnings for men for the years 1999-2008?

○ $43,000

→ ○ $44,400

○ $44,500

○ $44,600

○ $44,700

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-05 Identify the mode. |

Award: **1.00 point**

i. For salaries of $102,000, $98,000, $25,000, $106,000 and $101,000, the arithmetic mean would be an appropriate average.
ii. Extremely high or low scores affect the value of the median.
iii. Three persons earn $8 an hour, six earn $9 an hour, and one earns $12 an hour. The weighted mean hourly wage is $10.

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and, (iii) are correct statements but not (i).

→ ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-04 Determine the median.
Difficulty: Hard	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	

43.

i. For salaries of $102,000, $98,000, $35,000, $106,000 and $101,000, the arithmetic mean would be an appropriate average.
ii. Extremely high or low scores do not affect the value of the median.
iii. Three persons earn $8 an hour, six earn $9 an hour, and one earns $12 an hour. The weighted mean hourly wage is $9.

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

→ ○ (ii) and, (iii) are correct statements but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-04 Determine the median.
Difficulty: Hard	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	

Award: **1.00 point**

i. For salaries of $102,000, $98,000, $25,000, $106,000 and $101,000, the median would be an appropriate average.
ii. There are always as many values above the mean as below it.
iii. Three persons earn $8 an hour, six earn $9 an hour, and one earns $12 an hour. The weighted mean hourly wage is $9.

- ○ (i), (ii) and (iii) are all correct statements.

- ○ (i) and, (ii) are correct statements but not (iii).

→ ○ (i) and, (iii) are correct statements but not (ii).

- ○ (ii) and, (iii) are correct statements but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-04 Determine the median.
Difficulty: Hard	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	

45.

Referring to the printout below, describe the shape of the distribution of the corresponding histogram.

	Class Grades
count	35
mean	71.8
minimum	14.3
maximum	99.2
range	84
coefficient of variation (CV)	30.67%
1st quartile	58.25
median	77.25
3rd quartile	89.91
interquartile range	31.67
mode	82.0

○ Positively skewed

→ ○ Negatively skewed

○ Perfectly symmetrical

○ Statistical

References

46.

Referring to the histogram below, choose the best term to describe its shape.
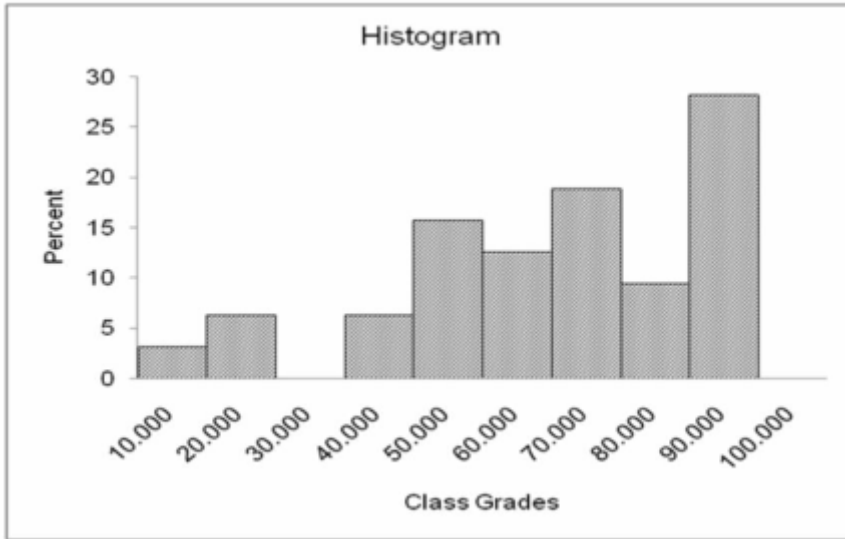
○ Positively skewed

→ ○ Negatively skewed

○ Perfectly symmetrical

○ Statistical

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

i. If there is an even number of ungrouped values, then half of the values will be less than the median.
ii. Extremely high or low scores affect the value of the median.
iii. There are always as many values above the mean as below it.

○ (i), (ii) and (iii) are all correct statements.

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

→ ○ (i) is a correct statement, but not (ii) or (iii).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.

48.

i. If there is an even number of ungrouped values, then half of the values will be less than the median.
ii. Extremely high or low scores do not affect the value of the median.
iii. There are always as many values above the mean as below it.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (i) is a correct statement, but not (ii) or (iii).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.

Award: **1.00 point**

Sometimes, data has two values that have the highest and equal frequencies. In this case, the distribution of the data can best be summarized as

○ symmetric

→ ○ bimodal (having two modes)

○ positively skewed

○ negatively skewed

○ continuous

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.
Difficulty: Medium	Learning Objective: 03-05 Identify the mode.

50.

Which measures of central tendency always have but one value for a set of grouped or ungrouped data?

○ Mode and median

○ Mode and mean

○ Mode and geometric mean

→ ○ Mean and median

○ Mean, median and geometric mean

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

51.

Which measures of central tendency are not affected by extremely low or extremely high values?

○ Mean and median

○ Mean and mode

→ ○ Mode and median

○ Geometric mean and mean

○ Mean only

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Medium	Learning Objective: 03-04 Determine the median.	

52.

What must be the least scale of measurement for the median?

○ Nominal

→ ○ Ordinal

○ Interval

○ Ratio

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-04 Determine the median.

53.

What are half of the observations always greater than?

→ ○ Median

○ Mode

○ Mean

○ Geometric mean

○ Weighted mean

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-04 Determine the median.

54.

If a frequency distribution has open-ended intervals at the extremes, which measure of central tendency is the most difficult to estimate?

○ Median

○ Mode

→ ○ Mean

○ Mean, Median and Mode

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

55.   Award: **1.00 point**

In the calculation of the arithmetic mean for grouped data, which value is used to represent all the values in a particular class?

- ○ The upper limit of the class
- ○ The lower limit of the class
- ○ The frequency of the class
- ○ The cumulative frequency preceding the class
- → ○ The midpoint of the class

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

56.   Award: **1.00 point**

A disadvantage of using an arithmetic mean to summarize a set of data is

- ○ The arithmetic mean sometimes has two values.
- ○ It can be used for interval and ratio data
- ○ It is always different from the median.
- → ○ It can be biased by one or two extremely small or large values.
- ○ It doesn't always exist.

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

57.

The mean, as a measure of central tendency, would be inappropriate for which one of the following?

- ○ Ages of adults at a senior citizen center
- ○ Incomes of lawyers
- ○ Number of pages in textbooks on statistics
- → ○ Marital status of college students at a particular university
- ○ Number of family pets

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-02 Identify and compute the arithmetic mean. |

58.

If a major sports star were to move into your neighbourhood, what would you expect to happen to the neighbourhood's "average" income?

- → ○ The mean income would increase significantly
- ○ The median income would increase significantly
- ○ The modal income would increase significantly
- ○ The mean income would increase significantly, but the modal income and median income would decrease
- ○ The standard deviation of the neighbourhood's income would get smaller

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-02 Identify and compute the arithmetic mean. |

59.

The mean, as a measure of central location would be inappropriate for which one of the following?

○ Ages of adults at a senior citizen center

○ Incomes of lawyers

○ Number of pages in textbooks on statistics

→ ○ Marital status of college students at a particular university

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

60.

A disadvantage of using an arithmetic mean to summarize a set of data is

○ It can be used for ratio data.

○ It is always different from the median.

→ ○ It can be biased by one or two extremely small or large values.

○ The arithmetic mean sometimes has two values.

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

61.

What is a disadvantage of the range as a measure of dispersion?

→ ○ Based on only two observations

○ Can be distorted by a large mean

○ Not in the same units as the original data

○ Has no disadvantage

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.

62.

If a major sports star were to move into your neighbourhood, what would you expect to happen to the neighbourhood's "average" income?

○ The mean income would decrease significantly

○ The median income would increase significantly

○ The modal income would increase significantly

→ ○ The mean income would increase significantly, but the median income would stay almost the same as before

○ The standard deviation of the neighbourhood's income would get smaller

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

63.

The following printout is a summary of housing prices in Edmonton:

Descriptive statistics	
	List Price
count	96
mean	447,403.14
sample variance	20,560,909,990.86
sample standard deviation	143,390.76
minimum	269,900
maximum	1,100,000
range	830,100
1st quartile	357,250.00
median	402,400.00
3rd quartile	479,150.00
interquartile range	121,900.00
mode	399,900.00

What can we determine from this printout?

○ The mean list price is less than both the median and modal prices

→ ○ The median list price is the most representative as it is larger than the modal price and smaller than the mean price.

○ The modal price is affected by a few houses that must be priced very high

○ More than half of the houses are listed above $425,000.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Medium	Learning Objective: 03-04 Determine the median.	

The following printout is a summary of number of bedrooms in homes for sale in Regina:

Descriptive statistics

	No of Bedrooms
count	99
mean	3.73
sample variance	1.12
sample standard deviation	1.06
minimum	0
maximum	7
range	7
skewness	0.04
kurtosis	2.11
coefficient of variation (CV)	28.38%
1st quartile	3.00
median	4.00
3rd quartile	4.00
interquartile range	1.00
mode	4.00

What can we determine from this printout?

→ ○ The mean number of bedrooms is less than both the median and modal number.

○ The median number of bedrooms is the most representative as it is larger than the modal number and smaller than the mean number of bedrooms.

○ The modal number of bedrooms is affected by a few houses that must have a large number of bedrooms.

○ 75% of the houses have more than 3 bedrooms.

References

| Multiple Choice | Learning Objective: 03-02 Identify and compute the arithmetic mean. | Learning Objective: 03-05 Identify the mode. |

65.

Award: **1.00 point**

i. The sum of the deviations from the mean for the set of numbers 4, 9 and 5 will equal zero.
ii. If there is an even number of ungrouped values, the median is found by arranging them from low to high and then determining the arithmetic mean of the two middle values.
iii. For salaries of $102,000, $98,000, $35,000, $106,000 and $101,000, the arithmetic mean would be an appropriate average.

○ (i), (ii) and (iii) are all correct statements.

→ ○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and, (iii) are correct statements but not (i).

○ (i), (ii) and (iii) are all false statements.

References

66.

i. In a negatively skewed distribution, the mean is always greater than the median.
ii. In a negatively skewed distribution, the median occurs at the peak of the curve.
iii. In a positively skewed distribution, the mode is greater than the median.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
- ○ (i) and, (iii) are correct statements but not (ii).
- ○ (i) is a correct statement, but not (ii) or (iii).
- → ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

67.

i. In a positively skewed distribution, the mean is always greater than the median.
ii. In a negatively skewed distribution, the median occurs at the peak of the curve.
iii. In a negatively skewed distribution, the mode is greater than the median.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
- → ○ (i) and, (iii) are correct statements but not (ii).
- ○ (i) is a correct statement, but not (ii) or (iii).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

68.

i. The mode is the value of the observation that appears most frequently.
ii. A distribution that has the same shape on either side of the center is said to be symmetrical.
iii. Negatively skewed indicates that a distribution is not symmetrical. The long tail is to the left or in the negative direction.

→ ◯ (i), (ii) and (iii) are all correct statements

◯ (i) and, (ii) are correct statements but not (iii).

◯ (i) and, (iii) are correct statements but not (ii).

◯ (ii) and, (iii) are correct statements but not (i).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

69.

i. In a positively skewed distribution, the mean is always greater than the median.
ii. In a negatively skewed distribution, the mode occurs at the peak of the curve.
iii. In a negatively skewed distribution, the mode is greater than the median.

→ ◯ (i), (ii) and (iii) are all correct statements

◯ (i) and, (ii) are correct statements but not (iii).

◯ (i) and, (iii) are correct statements but not (ii).

◯ (i) is a correct statement, but not (ii) or (iii).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

70.

What is the relationship among the mean, median and mode in a symmetric distribution?

→ ○ All values are equal

○ Mean is always the smallest value

○ Mean is always the largest value

○ Mode is the largest value

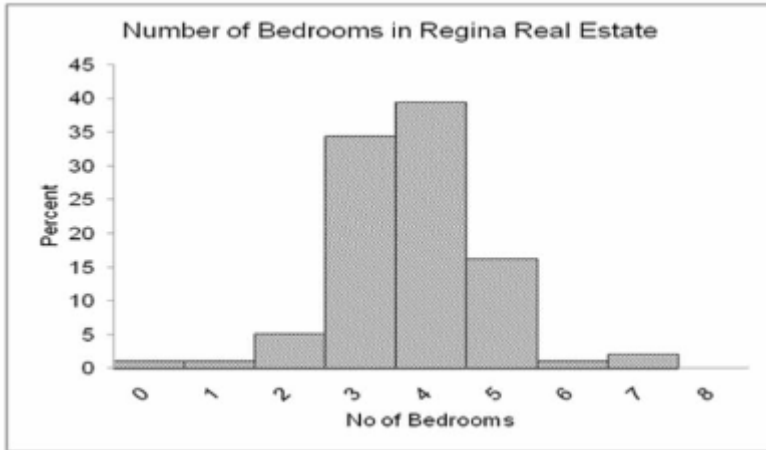○ Median is always the largest value

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-05 Identify the mode.

71.

Based on the graph below, how can we best describe the shape of this distribution?

Number of Bedrooms in Regina Real Estate

→ ◯ Relatively symmetrical

◯ Positively skewed

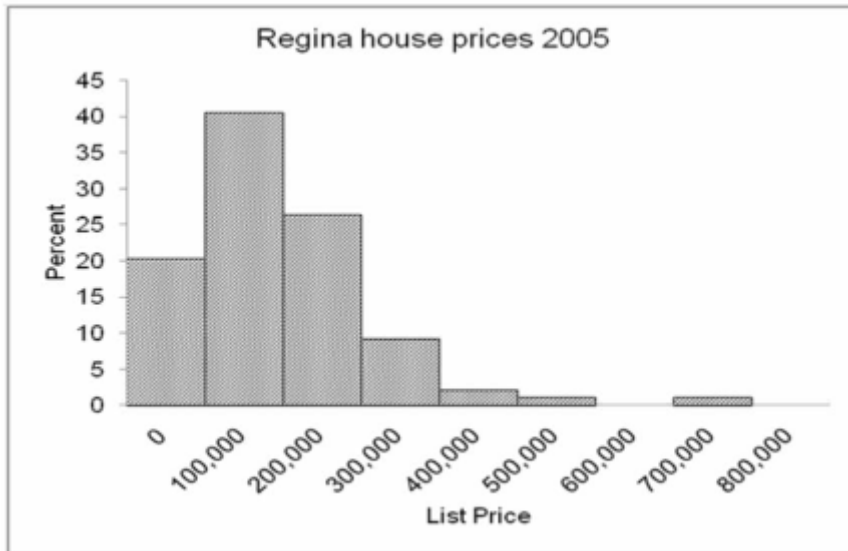◯ Negatively skewed

◯ No variation

◯ Bimodal

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-05 Identify the mode. |

Award: **1.00 point**

Based on the graph below, how can we best describe the shape of this distribution?
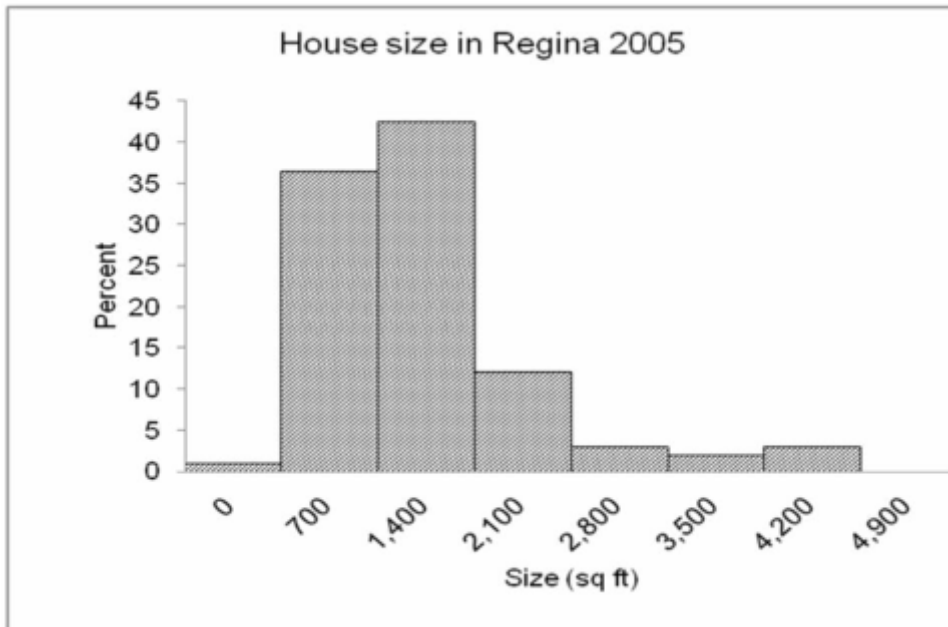
House size in Regina 2005

O Symmetrical

→ O Positively skewed

O Negatively skewed

O No variation

O Bimodal

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-05 Identify the mode. |

73.

Based on the graph below, how can we best describe the shape of this distribution?

Regina house prices 2005

○ Relatively symmetrical

→ ○ Positively skewed

○ Negatively skewed

○ No variation

○ Bimodal

References

| Multiple Choice | Difficulty: Easy | Learning Objective: 03-05 Identify the mode. |

74.

Rank the *measures of dispersion* in terms of their relative computational difficulty from least to most difficulty.

- ◯ Mode, median, mean
- → ◯ Range, mean deviation, variance
- ◯ Variance, mean deviation, range
- ◯ There is no difference

References

Multiple Choice	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.	

The ages of a sample of telephones used in a small town hotel were organized into the following table:

Ages (in years)	Number
2 to under 5	2
5 to under 8	5
8 to under 11	10
11 to under 14	4
14 to under 17	2

What is the sample variance?

→ ○ About 10.2

○ About 6.1

○ About 14.0

○ About 3.2

○ About 5.0

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

76.

A purchasing agent for a trucking company is shopping for replacement tires for their trucks from two suppliers. The suppliers' prices are the same. However, Supplier A's tires have an average life of 100,000 kms with a standard deviation of 10,000 kms. Supplier B's tires have an average life of 100,000 kms with a standard deviation of 2,000 kms. Which of the following statements is true?

○ The two distributions of tire life are the same

○ On average, Supplier A's tires have a longer life then Supplier B's tires

→ ○ The life of Supplier B's tire is more predictable than the life of Supplier A's tires

○ The dispersion of Supplier A's tire life is less than the dispersion of Supplier B's tire life

○ The life of Supplier A's tire is more predictable than the life of Supplier B's tires

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

77.

The sum of the differences between sample observations and the sample mean is

→ ○ Zero

○ The mean deviation

○ The range

○ The standard deviation

○ The mean

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-02 Identify and compute the arithmetic mean.

78.

Which of the following measures of dispersion are based on deviations from the mean?

○ Variance

○ Standard deviation

○ Mean deviation

→ ○ Mean deviation, standard deviation, and variance

References

Multiple Choice	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.	

79.

What is the relationship between the variance and the standard deviation?

- ○ Variance is the square root of the standard deviation
- → ○ Variance is the square of the standard deviation
- ○ Variance is twice the standard deviation
- ○ No constant relationship between the variance and the standard deviation

References

Multiple Choice	Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean.
Difficulty: Easy	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

80.

What is the range for this sample of March electric bills amounts for all-electric homes of similar sizes (to the nearest dollar): $212, $191, $176, $129, $106, $92, $108, $109, $103, $121, $175 and $194.

- ○ $100
- ○ $130
- → ○ $120
- ○ $112
- ○ $115

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.

81.

A survey of passengers on domestic flights revealed these distances:

Kilometres Flown	Number of Passengers
100 to under 500	16
500 to under 900	41
900 to under 1300	81
1300 to under 1700	11
1700 to under 2100	9
2100 to under 2500	6

What is the range (in kms)?

○ 2499

○ 1100

→ ○ 2400

○ 1999

○ 2500

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.

82.

Which measure of dispersion disregards the algebraic signs (plus and minus) of each difference between X and the mean?

○ Standard deviation

→ ○ Mean deviation

○ Arithmetic mean

○ Variance

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.

83.

Award: **1.00 point**

A population consists of all the weights of all defensive tackles on Sociable University's football team. They are: Johnson, 204 pounds; Patrick, 215 pounds; Junior, 207 pounds; Kendron, 212 pounds; Nicko, 214 pounds; and Cochran, 208 pounds. What is the population standard deviation (in pounds)?

→ ○ About 4

○ About 16

○ About 100

○ About 40

○ Zero

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

84.

Award: **1.00 point**

The weights (in grams) of the contents of several small bottles are 4, 2, 5, 4, 5, 2 and 6. What is the sample variance?

○ 6.92

○ 4.80

○ 1.96

→ ○ 2.33

○ Zero

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

85.

Each person who applies for an assembly job at Robert's Electronics is given a mechanical aptitude test. One part of the test involves assembling a plug-in unit based on numbered instructions. A sample of the length of time it took 42 persons to assemble the unit was organized into the following frequency distribution.

Length of Time (in minutes)	Number
1 to under 4	4
4 to under 7	8
7 to under 10	14
10 to under 13	9
13 to under 16	5
16 to under 19	2

What is the standard deviation (in minutes)?

→ ○ 3.89

○ 6.01

○ 8.78

○ 17.00

○ Zero

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

86.

The following are the weekly amounts of welfare payments made by the federal government to a sample of six families: $139, $136, $130, $136, $147 and $136. What is the range?

- ○ $0
- ○ $14
- ○ $52
- → ○ $17
- ○ $147

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.

87.

Measures of dispersion calculated from grouped data are

- → ○ Estimates
- ○ Biased
- ○ Means
- ○ Skewed

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

88.

The closing prices of a common stock have been 61.5, 62, 61.25, 60.875 and 61.5 for the past week. What is the range?

- ○ $1.250
- ○ $1.750
- → ○ $1.125
- ○ $1.875

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-06 Explain and apply measures of dispersion.

89.

Ten experts rated a newly developed chocolate chip cookie on a scale of 1 to 50. Their ratings were: 34, 35, 41, 28, 26, 29, 32, 36, 38 and 40. What is the mean deviation?

- ○ 8.00
- → ○ 4.12
- ○ 12.67
- ○ 0.75

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

90.

Award: **1.00 point**

The weights (in kilograms) of a group of crates being shipped to Panama are 95, 103, 110, 104, 105, 112 and 92. What is the mean deviation?

→ ○ 5.43 kg

○ 6.25 kg

○ 0.53 kg

○ 52.50 kg

References

91.

Award: **1.00 point**

The ages of all the patients in the isolation ward of the hospital are 38, 26, 13, 41 and 22. What is the population variance?

→ ○ 106.8

○ 91.4

○ 240.3

○ 42.4

References

A sample of the daily number of passengers per bus riding the Bee Line commuter route yielded the following information:

Number of Passengers	Frequency
0 to under 5	4
5 to under 10	9
10 to under 15	5
15 to under 20	10
20 to under 25	2

What is the standard deviation?

→ ○ About 6.06

○ About 20.0

○ About 12.9

○ About 2.3

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

i. The standard deviation is the positive square root of the variance.
ii. For a symmetrical distribution, the variance is equal to the standard deviation.
iii. If the standard deviation of the ages of a female group of employees is six years and the standard deviation of the ages of a male group in the same plant is ten years, it indicates that there is more spread in the ages of the female employees.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
- ○ (i) and, (iii) are correct statements but not (ii).
- → ○ (i) is a correct statement, but not (ii) or (iii).
- ○ (i), (ii) and (iii) are all false statements

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

94.

i. If a frequency distribution is open-ended, the variance cannot be determined.
ii. The range cannot be computed for data grouped in a frequency distribution having an open end.
iii. The standard deviation is the positive square root of the variance

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Hard	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

95.

What is a disadvantage of the range as a measure of dispersion?

→ ○ Based on only two observations

○ Can be distorted by a large mean

○ Not in the same units as the original data

○ Has no disadvantage

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

96.

What disadvantage(s) are there of the mean deviation?

○ Based on only two observations

○ Based on deviations from the mean

→ ○ Uses absolute values, which are difficult to manipulate

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

97.

A sample of the monthly amounts spent for food by families of four receiving food stamps approximates a symmetrical distribution. The sample mean is $150 and the standard deviation is $20. Using the Empirical Rule, about 95 percent of the monthly food expenditures are between what two amounts?

○ $100 and $200

○ $85 and $105

○ $205 and $220

→ ○ $110 and $190

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

A sample of assistant professors on the business faculty at the largest college in Ontario revealed the mean annual income to be $62,000 with a standard deviation of $3,000. Using the Empirical Rule, what proportion of faculty earn more than $56,000 but less than $68,000?

○ At least 50%

○ Approximately 68%

○ At least 75%

→ ○ Approximately 95%

○ Almost all

References

Multiple Choice   Difficulty: Medium   Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

99.

Samples of the wires coming off the production line were tested for tensile strength. The statistical results (in PSI) were:

Arithmetic mean	500	Median	500
Mode	500	Standard deviation	40
Mean deviation	32	Quartile deviation	25
Range	240	Number in sample	100

According to the Empirical Rule, the middle 95 percent of the wires tested between approximately what two values?

○ 450 and 550

○ 460 and 540

→ ○ 420 and 580

○ 380 and 620

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule. |

100.

The distribution of a sample of the outside diameters of PVC gas pipes approximates a symmetrical, bell-shaped distribution. The arithmetic mean is 14.0 cm, and the standard deviation is 0.1 cm. About 68 percent of the outside diameters lie between what two amounts?

○ 13.5 and 14.5 cm

○ 13.0 and 15.0 cm

→ ○ 13.9 and 14.1 cm

○ 13.8 and 14.2 cm

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule. |

Award: **1.00 point**

Below is a summary of the size of homes for sale in Regina in 2005.
The Empirical Rule would suggest that the middle 68% of the home sizes are between what two approximate values?

	Size (sq ft)
count	99
mean	1,713.38
sample variance	674,283.32
sample standard deviation	821.15
minimum	0
maximum	4737
range	4737

- ○ 1,000 to 2,000 sq. ft.
→ ○ 892 to 2,534 sq ft.
- ○ 71 to 3,355 sq ft.
- ○ 0 to 4,176 sq ft.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

Below is a summary of the size of homes for sale in Regina in 2005.
The Empirical Rule would suggest that the middle 95% of the home sizes are between what two approximate values?

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○ 1,000 to 2,000 sq. ft.

○ 892 to 2,534 sq ft.

→ ○ 71 to 3,355 sq ft.

○ 0 to 4,176 sq ft.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

103. Award: **1.00 point**

The Empirical Rule states that:

(i) about 68% of the observation will lie within one standard deviation of the mean;
ii. about 95% of the observations will lie within two standard deviations of the mean;
iii. and virtually all (99.7%) will lie within three standard deviations of the mean.

→ ○ (i), (ii) and (iii) are all correct statements.

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

104. Award: **1.00 point**

Chebyshev's theorem states that:

i. About 68% of the observation will lie within one standard deviation of the mean;
ii. About 95% of the observations will lie within two standard deviations of the mean;
iii. Virtually all (99.7%) will lie within three standard deviations of the mean.

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

→ ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.

105. Award: **1.00 point**

i. An outlier is a value in a data set that is inconsistent with the rest of the data.
ii. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.
iii. A percentile divides a distribution into one hundred equal parts.

→ ◯ (i), (ii) and (iii) are all correct statements

◯ (i) and, (ii) are correct statements but not (iii).

◯ (i) and, (iii) are correct statements but not (ii).

◯ (i) is a correct statement, but not (ii) or (iii).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

106. Award: **1.00 point**

i. An outlier is a value in a data set that is inconsistent with the rest of the data.
ii. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.
iii. A student scored in the 85 percentile on a standardized test. This means that the student scored lower than 85% of the rest of the students taking the test.

◯ (i), (ii) and (iii) are all correct statements

→ ◯ (i) and, (ii) are correct statements but not (iii).

◯ (i) and, (iii) are correct statements but not (ii).

◯ (i) is a correct statement, but not (ii) or (iii).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

107. Award: **1.00 point**

i. A percentile divides a distribution into one hundred equal parts.
ii. A student scored in the 85 percentile on a standardized test. This means that the student scored lower than 85% of the rest of the students taking the test.
iii. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
→ ○ (i) and, (iii) are correct statements but not (ii).
- ○ (i) is a correct statement, but not (ii) or (iii).
- ○ (i), (ii) and (iii) are all false statements.

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

108. Award: **1.00 point**

i. A percentile divides a distribution into one hundred equal parts.
ii. A student scored in the 85 percentile on a standardized test. This means that the student scored higher than 85% of the rest of the students taking the test.
iii. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.

→ ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
- ○ (i) and, (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

109. Award: **1.00 point**

What do the quartile deviation and the interquartile range describe?

- ○ Lower 50% of the observations
- → ○ Middle 50% of the observations
- ○ Upper 50% of the observations
- ○ Lower 25% and the upper 25% of the observations

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-10 Identify and compute measures of position. |

110. Award: **1.00 point**

i. An outlier is a data point that always occurs in the first quartile.
ii. A student scored in the 85 percentile on a standardized test. This means that the student scored higher than 85% of the rest of the students taking the test.
iii. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and, (ii) are correct statements but not (iii).
- ○ (i) and, (iii) are correct statements but not (ii).
- → ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

| Multiple Choice | Difficulty: Hard | Learning Objective: 03-10 Identify and compute measures of position. |

111.

i. The interquartile range is the difference between the values of the first and third quartile, indicating the range of the middle fifty percent of the observations.
ii. An outlier is a data point that always occurs in the first quartile.
iii. A student scored in the 85 percentile on a standardized test. This means that the student scored higher than 85% of the rest of the students taking the test.

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and, (ii) are correct statements but not (iii).

→ ○ (i) and, (iii) are correct statements but not (ii).

- ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

112.

i. The interquartile range is the average of the values of the first and third quartile.
ii. An outlier is a data point that always occurs in the first quartile.
iii. A student scored in the 85 percentile on a standardized test. This means that the student scored lower than 85% of the rest of the students taking the test.

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and, (ii) are correct statements but not (iii).

- ○ (i) and, (iii) are correct statements but not (ii).

- ○ (ii) and (iii) are correct statements, but not (i).

→ ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-10 Identify and compute measures of position.

113.

A box plot shows

○ The mean and variance

→ ○ The relative symmetry of a distribution for a set of data

○ The percentiles of a distribution

○ The deciles of a distribution

○ The location of the mean of a distribution

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-11 Construct and analyze a box plot.

114.

What statistics are needed to draw a box plot?

→ ○ Minimum, maximum, median, first and third quartiles

○ Median, mean and standard deviation

○ A mean and dispersion

○ A mean and a standard deviation

○ Q1, Q2 and Q3

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

115.

The coefficient of variation for a set of annual incomes is 18%; the coefficient of variation for the length of service with the company is 29%. What does this indicate?

○ More dispersion in the distribution of the incomes compared with the dispersion of their length of service

→ ○ More dispersion in the lengths of service compared with incomes

○ Dispersion in the two distributions (income and service) cannot be compared using percents

○ Dispersions are equal

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean. |

116.

Mr. and Mrs. Jones live in a neighbourhood where the mean family income is $45,000 with a standard deviation of $9,000. Mr. and Mrs. Smith live in a neighbourhood where the mean is $100,000 and the standard deviation is $30,000. What are the relative dispersions of the family incomes in the two neighbourhoods?

○ Jones 40%, Smith 20%

→ ○ Jones 20%, Smith 30%

○ Jones 30%, Smith 20%

○ Jones 50%, Smith 33%

References

| **Multiple Choice** | Difficulty: Medium | Learning Objective: 03-03 Compute and interpret the weighted mean and geometric mean. |

117.

A large oil company is studying the number of gallons of gasoline purchased per customer at self-service pumps. The mean number of litres is 10.0 with a standard deviation of 3.0 litres. The median is 10.75 litres. What is the Pearson's coefficient of skewness?

- ○ - 1.00
- → ○ - 0.75
- ○ + 0.75
- ○ + 1.00

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

118.

What is the value of the Pearson coefficient of skewness for a distribution with a mean of 17, median of 12 and standard deviation of 6?

- → ○ + 2.5
- ○ - 2.5
- ○ + 0.83
- ○ - 0.83

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

119.

A study of business faculty in Ontario revealed that the arithmetic mean annual salary is $62,000 and a standard deviation of $3,000. The study also showed that the faculty had been employed an average (arithmetic mean) of 15 years with a standard deviation of 4 years. How does the relative dispersion in the distribution of salaries compare with that of the lengths of service?

○ Salaries about 100%, service about 50%

→ ○ Salaries about 5%, service about 27%

○ Salaries about 42%, service about 81%

○ Salaries about 2%, service about 6%

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

The printout below is a summary of the average annual earnings of male full time workers in Canada from 1999-2008. Determine the coefficient of variation.

	Men
count	10
mean	44,700.00
sample variance	1,011,111.11
sample standard deviation	1,005.54
minimum	43000
maximum	46900
range	3900
population variance	910,000.00
population standard deviation	953.94

○ 1.0%

→ ○ 2.2%

○ 3%

○ 15%

○ 25%

References

Multiple Choice   Difficulty: Medium   Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

The printout below is a summary of the average annual earnings of male full time workers in Canada from 1999-2008. Determine the coefficient of variation.

Women's Earnings 1999-2008	
count	10
mean	28,320.00
sample variance	1,152,888.89
sample standard deviation	1,073.73
minimum	27000
maximum	30200
range	3200

○ 1.0%

○ 2.5%

○ 3%

→ ○ 3.8%

○ 4.25%

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

122. Award: **1.00 point**

The coefficient of variation generally lies between what two values?

○ - 1 and + 1

○ - 3 and + 3

→ ○ 0% and 100%

○ Unlimited values

123. Award: **1.00 point**

A research analyst wants to compare the dispersion in the price-earnings ratios for a group of common stock with their return on investment. For the price-earnings ratios, the mean is 10.9 and the standard deviation is 1.8. The mean return on investment is 25 percent and the standard deviation 5.2 percent. What is the relative dispersion for the price-earnings ratios and return on investment?

○ Ratios = 32.0 percent, investment = 19.0 percent

→ ○ Ratios = 16.5 percent, investment = 20.8 percent

○ Ratios = 132.0 percent, investment = 190.0 percent

○ Ratios = 50.0 percent, investment = 10.0 percent

124. Award: **1.00 point**

A study of the scores on an in-plant course in management principles and the years of service of the employees enrolled in the course resulted in these statistics:

i. Mean test score was 200 with a standard deviation of 40
ii. Mean number of years of service was 20 years with a standard deviation of 2 years.

In comparing the relative dispersion of the two distributions, what are the coefficients of variation?

- ○ Test 50%, service 60%
- ○ Test 100%, service 400%
- → ○ Test 20%, service 10%
- ○ Test 35%, service 45%

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation. |

125. Award: **1.00 point**

A large group of inductees was given a mechanical aptitude and a finger dexterity test. The arithmetic mean score on the mechanical aptitude test was 200, with a standard deviation of 10. The mean and standard deviation for the finger dexterity test were 30 and 6 respectively. What is the relative dispersion in the two groups?

- → ○ Mechanical 5 percent, finger 20 percent
- ○ Mechanical 20 percent, finger 10 percent
- ○ Mechanical 500 percent, finger 200 percent
- ○ Mechanical 50 percent, finger 200 percent
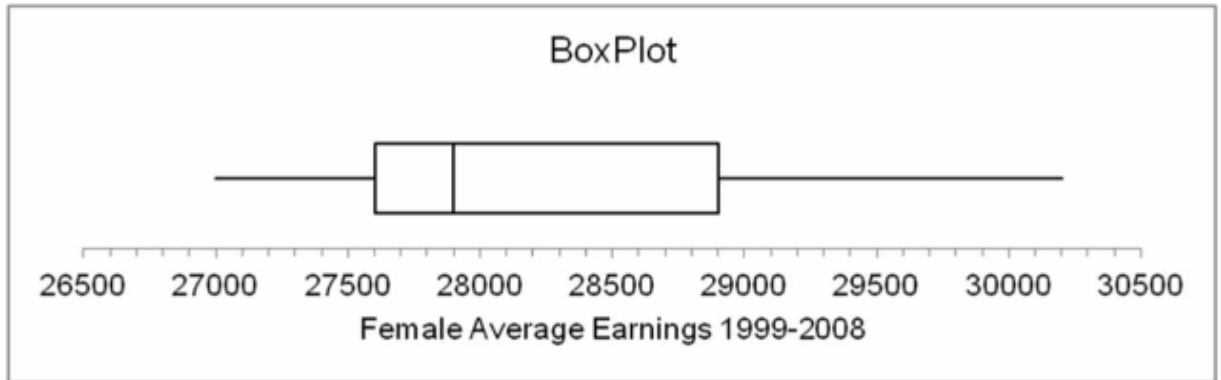
References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation. |

126. Award: **1.00 point**

A study of business faculty in Ontario revealed that the arithmetic mean annual salary is $72,000 and a standard deviation of $3,000. The study also showed that the faculty had been employed an average (arithmetic mean) of 15 years with a standard deviation of 4 years. How does the relative dispersion in the distribution of salaries compare with that of the lengths of service?

○ Salaries about 100%, service about 50%

→ ○ Salaries about 4%, service about 27%

○ Salaries about 42%, service about 81%

○ Salaries about 2%, service about 6%

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

Listed below is the box plot of average earnings ratio for full-year, full-time female workers from 1999 to 2008.

BoxPlot

26500   27000   27500   28000   28500   29000   29500   30000   30500

Female Average Earnings 1999-2008

From this we can interpret that the distribution of average earnings for women for the years 1999-2008 was:

○ Symmetrical

→ ○ Positively skewed
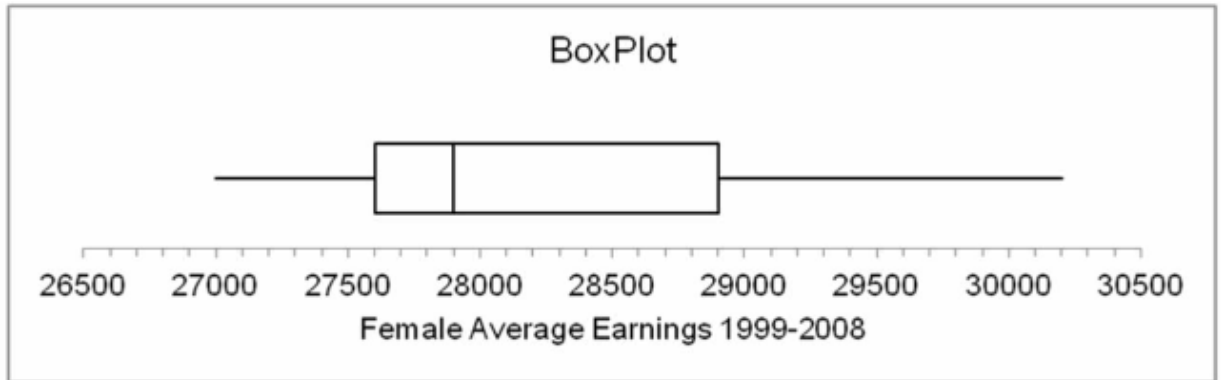
○ Negatively skewed

○ Bimodal

○ Variable

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

Listed below is the box plot of average earnings ratio for full-year, full-time female workers from 1999 to 2008.

BoxPlot

26500   27000   27500   28000   28500   29000   29500   30000   30500

Female Average Earnings 1999-2008

From this we can interpret that the median of average earnings for women for the years 1999-2008 was approximately:

○ $27,600
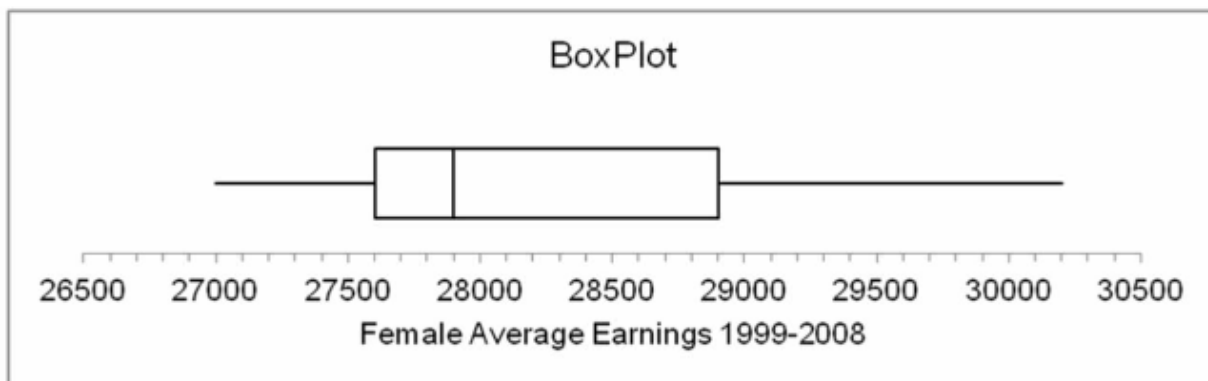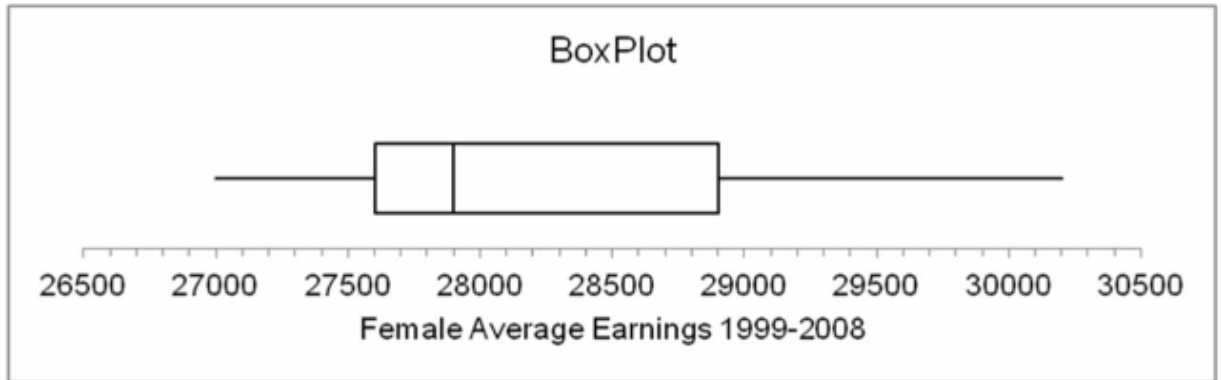
→ ○ $27,900

○ $28,500

○ $28,900

○ $30,200

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

129. Award: **1.00 point**

Listed below is the box plot of average earnings ratio for full-year, full-time female workers from 1999 to 2008:

BoxPlot

26500   27000   27500   28000   28500   29000   29500   30000   30500
Female Average Earnings 1999-2008

From this we can interpret that the first quartile of average earnings for women for the years 1999-2008 was approximately:

→ ○ $27,600
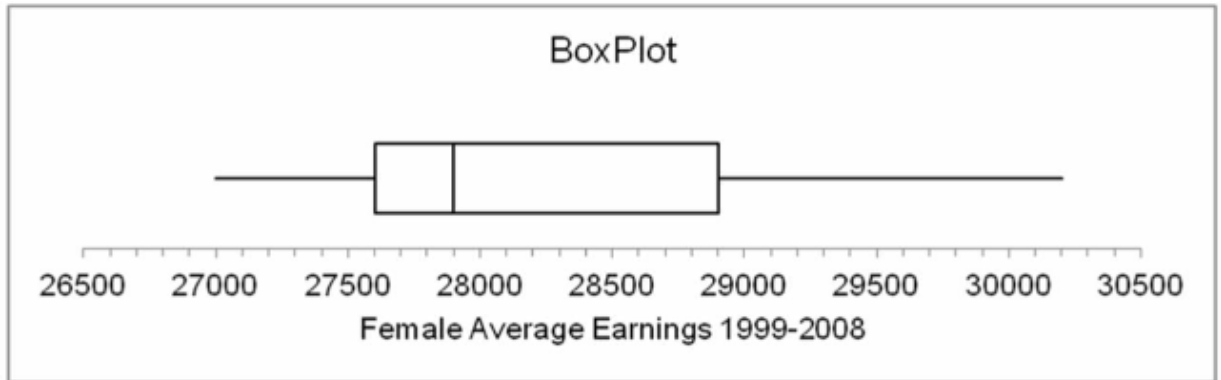
○ $27,900

○ $28,500

○ $28,900

○ $30,200

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-11 Construct and analyze a box plot. |

Listed below is the box plot of average earnings ratio for full-year, full-time female workers from 1999 to 2008:

BoxPlot

26500   27000   27500   28000   28500   29000   29500   30000   30500

Female Average Earnings 1999-2008

From this we can interpret that the third quartile of average earnings for women for the years 1999-2008 was approximately:

- ○ $27,600
- ○ $27,900
- ○ $28,500
- → ○ $28,900
- ○ $30,200

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

131. Award: **1.00 point**

Listed below is the box plot of average earnings ratio for full-year, full-time female workers from 1999 to 2008:

BoxPlot

26500   27000   27500   28000   28500   29000   29500   30000   30500
Female Average Earnings 1999-2008

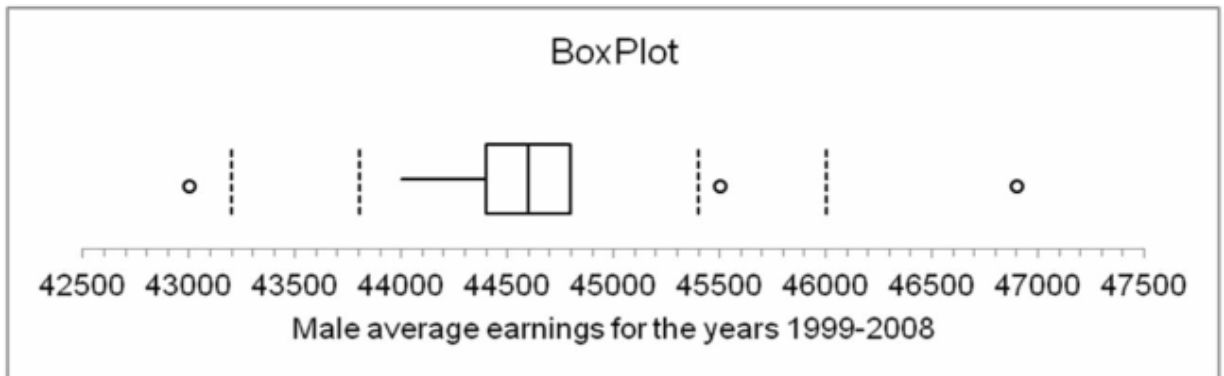From this we can interpret that the range of average earnings for women for the years 1999-2008 was approximately:

○ $27,600

○ $27,900

○ $28,900

○ $30,200

→ ○ $3,200

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

132.

Listed below is the box plot of average earnings ratio for full-year, full-time male workers from 1999 to 2008:

BoxPlot

42500 43000 43500 44000 44500 45000 45500 46000 46500 47000 47500

Male average earnings for the years 1999-2008

From this we can interpret that the range of average earnings for men for the years 1999-2008 was approximately:
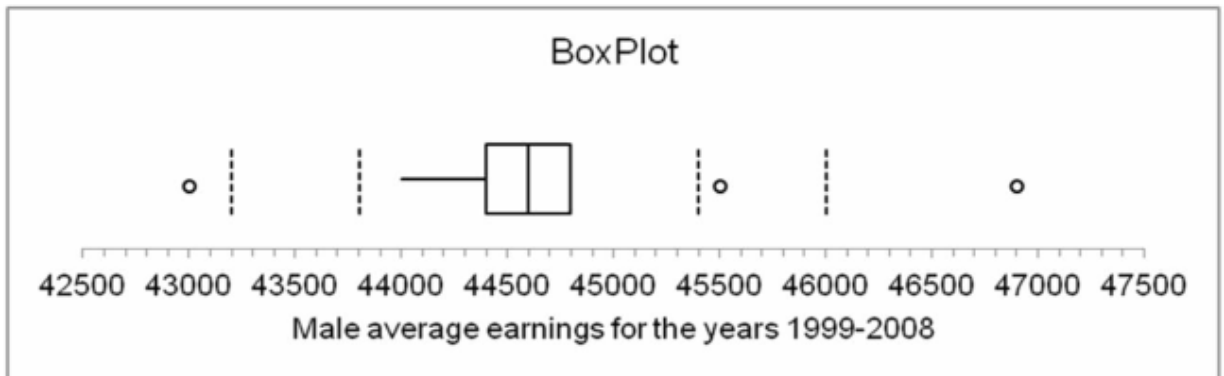
○ $400

○ $900

○ $2,000

○ $3,000

→ ○ $3,900

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

Listed below is the box plot of average earnings ratio for full-year, full-time male workers from 1999 to 2008:

BoxPlot

Male average earnings for the years 1999-2008

From this we can interpret that the first quartile of average earnings for men for the years 1999-2008 was approximately:

- ○ $44,000
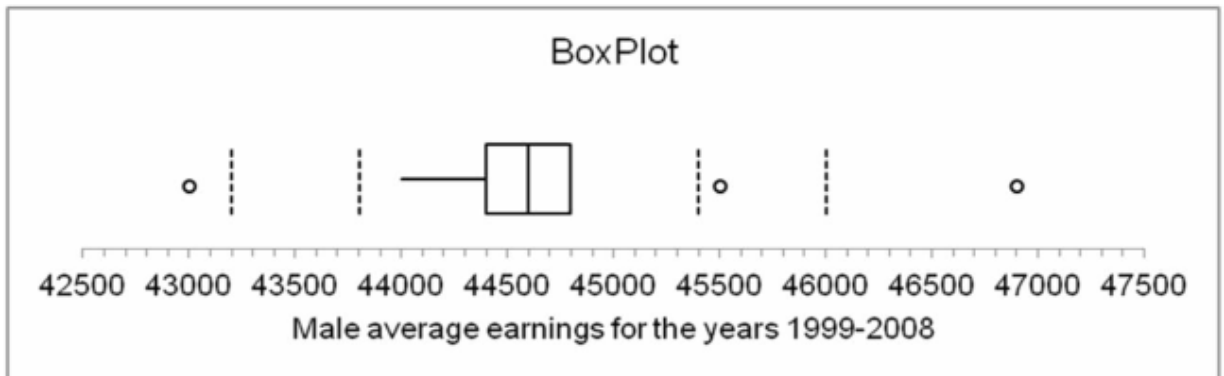→ ○ $44,400
- ○ $44,800
- ○ $45,600
- ○ $46,900

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-11 Construct and analyze a box plot.

134.

Listed below is the box plot of average earnings ratio for full-year, full-time male workers from 1999 to 2008.

BoxPlot

42500 43000 43500 44000 44500 45000 45500 46000 46500 47000 47500

Male average earnings for the years 1999-2008

From this we can interpret that the third quartile of average earnings for men for the years 1999-2008 was approximately:
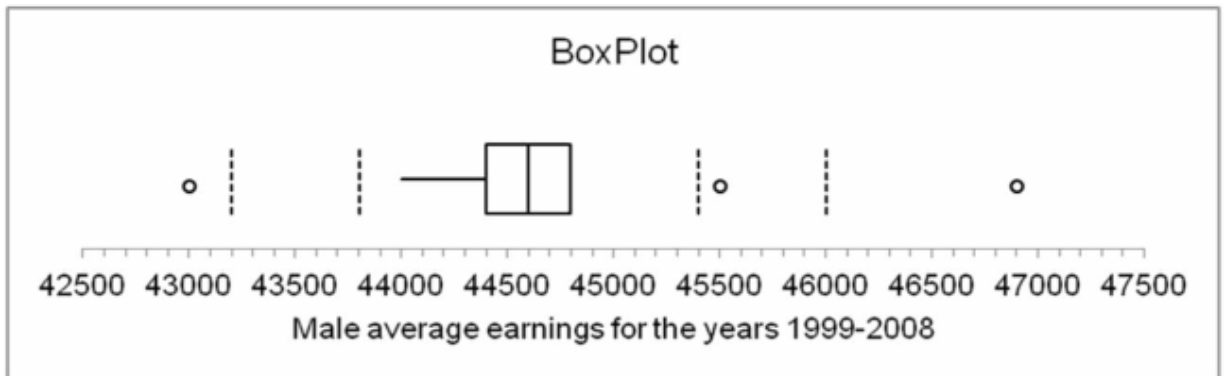
○ $44,000

○ $44,400

→ ○ $44,800

○ $45,600

○ $46,900

References

| **Multiple Choice** | Difficulty: Medium | Learning Objective: 03-11 Construct and analyze a box plot. |

135.

Listed below is the box plot of average earnings ratio for full-year, full-time male workers from 1999 to 2008:

BoxPlot

42500 43000 43500 44000 44500 45000 45500 46000 46500 47000 47500

Male average earnings for the years 1999-2008

From this we can interpret that the maximum average earnings for men for the years 1999-2008 was approximately:

○ $44,000

○ $44,400

○ $44,800

○ $45,600

→ ○ $46,900

References

| Multiple Choice | Difficulty: Medium | Learning Objective: 03-11 Construct and analyze a box plot. |

In order to predict life expectancy, a data sample is received from a local funeral parlour. The sample includes the ages (in years) of each of the customers received over the past few weeks. The following is the Excel summary statistics:

Mean	64.9
Standard Error	1.67
Median	69.1
Mode	73.7
Standard Deviation	10.6
Sample Variance	111.8
Kurtosis	–0.2
Skewness	–1.0
Range	37.3
Minimum	39.5
Maximum	76.8
Sum	2595.9
Count	40
Largest (2)	76.1
Smallest (2)	44.9

136. Award: **1.00 point**

What is the size of the sample?

→ ○ 40

○ 46

○ 44.9

○ 2595.9

References

Multiple Choice   Difficulty: Easy   Learning Objective: 03-04 Determine the median.

137. Award: **1.00 point**

Determine the age of the youngest person who died in this sample.

○ 76.1

→ ○ 39.5

○ 44.9

○ 76.8

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-04 Determine the median. |

138. Award: **1.00 point**

Determine the age of the oldest person who died in this sample.

○ 37.3

○ 39.5

○ 44.9

→ ○ 76.8

References

| **Multiple Choice** | Difficulty: Easy | Learning Objective: 03-04 Determine the median. |

139.

Award: **1.00 point**

Describe the shape of the age of death distribution.

- ○ Slight positive skewness
- → ○ Slight negative skewness
- ○ Perfectly symmetrical
- ○ You cannot determine this from the data given
- ○ Strong negative skewness

References

Multiple Choice	Difficulty: Easy	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

140.

Award: **1.00 point**

Describe the shape of the age of death distribution.

(i) Since the mode is the largest of the 3 measures of central tendency, more people died at this older age than any earlier age
(ii) Since the mean age of death is the lowest of the three measures of central tendency, there must have been one or more person who died at a significantly younger age than the mode
(iii) Since the mode is the largest of the 3 measures of central tendency, everyone died at this age

- → ○ (i) and (ii) are correct statements, but (iii) is false.
- ○ (ii) and (iii) are correct statements, but (i) is false.
- ○ (i), (ii) and (iii) are all correct statements.
- ○ (i) and (iii) are correct statements, but (ii) is false.
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Hard	Learning Objective: 03-05 Identify the mode.

Award: **1.00 point**

(i) The mean is the measure of central tendency that uses all of the observations in its calculation.
(ii) The mode is the class with the largest number of observations.
(iii) If a set of observations contains an extreme value and none of the observations repeat themselves, the median is the most representative measure of central tendency.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

| Difficulty: Hard | Learning Objective: 03-04 Determine the median. | |

142. Award: **1.00 point**

(i) The mean is the measure of central tendency that uses all of the observations in its calculation.
(ii) The mode is the class with the fewest number of observations.
(iii) If a set of observations contains an extreme value and none of the observations repeat themselves, the median is the most representative measure of central tendency.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and (ii) are correct statements but not (iii).
- → ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

143.

(i) The mean is the measure of central tendency that uses all of the observations in its calculation.
(ii) The mode is the class with the largest number of observations.
(iii) If a set of observations contains an extreme value and none of the observations repeat themselves, the mean is the most representative measure of central tendency.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

144.

(i) The median is the measure of central tendency that uses all of the observations in its calculation.
(ii) The mode is the class with the largest number of observations.
(iii) If a set of observations contains an extreme value and none of the observations repeat themselves, the median is the most representative measure of central tendency.

- ◯ (i), (ii) and (iii) are all correct statements

- ◯ (i) and (ii) are correct statements but not (iii).

- ◯ (i) and (iii) are correct statements but not (ii).

→ ◯ (ii) and (iii) are correct statements, but not (i).

- ◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

| Difficulty: Hard | Learning Objective: 03-04 Determine the median. | |

145.

(i) The weekly sales from a sample of ten computer stores yielded a mean of $25,900; a median $25,000 and a mode of $24,500. The shape of the distribution is positively skewed
(ii) For the median (measure of central tendency), the data must be ranked before it is possible to determine it.
(iii) If the sum of all the values of a distribution is divided by the number of values, the result is the arithmetic mean.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Difficulty: Hard	Learning Objective: 03-04 Determine the median.

Award: **1.00 point**

(i) The weekly sales from a sample of ten computer stores yielded a mean of $25,900; a median $25,000 and a mode of $24,500. The shape of the distribution is negatively skewed
(ii) For the median (measure of central tendency), the data must be ranked before it is possible to determine it.
(iii) If the sum of all the values of a distribution is divided by the number of values, the result is the arithmetic mean.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

Award: **1.00 point**

(i) The weekly sales from a sample of ten computer stores yielded a mean of $25,900; a median $25,000 and a mode of $24,500. The shape of the distribution is positively skewed
(ii) For the mean (measure of central tendency), the data must be ranked before it is possible to determine it.
(iii) If the sum of all the values of a distribution is divided by the number of values, the result is the arithmetic mean.

- ◯ (i), (ii) and (iii) are all correct statements

- ◯ (i) and (ii) are correct statements but not (iii).

→ ◯ (i) and (iii) are correct statements but not (ii).

- ◯ (ii) and (iii) are correct statements, but not (i).

- ◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

Award: **1.00 point**

(i) If a distribution is highly skewed, the mean (measure of central tendency) should be avoided.
(ii) A characteristic of the population is called a parameter
(iii) A sample revealed that the ages of musicians playing in small local combos are 36, 29, 37, 32, 36 and 75. The median is the most appropriate measure of central tendency to represent the ages of the musicians.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-01 Explain the concept of central tendency.	Learning Objective: 03-04 Determine the median.
Difficulty: Hard	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

149. Award: **1.00 point**

(i) If a distribution is highly skewed, the median (measure of central tendency) should be avoided.
(ii) A characteristic of the population is called a parameter
(iii) A sample revealed that the ages of musicians playing in small local combos are 36, 29, 37, 32, 36 and 75. The median is the most appropriate measure of central tendency to represent the ages of the musicians.

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and (ii) are correct statements but not (iii).

- ○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

(i) If a distribution is highly skewed, the mean (measure of central tendency) should be avoided.
(ii) A characteristic of the population is called a statistic.
(iii) A sample revealed that the ages of musicians playing in small local combos are 36, 29, 37, 32, 36 and 75. The median is the most appropriate measure of central tendency to represent the ages of the musicians.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-01 Explain the concept of central tendency.	Learning Objective: 03-04 Determine the median.
Difficulty: Hard	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

(i) The arithmetic mean (measure of central tendency) cannot be determined if the distribution has an open-ended class.
(ii) The measure of central tendency used to determine the average annual percent increase in sales from one time period to another is the geometric mean.
(iii) The smallest measure of central tendency in a positively skewed distribution is the mode.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.	

(i) The median (measure of central tendency) cannot be determined if the distribution has an open-ended class.
(ii) The measure of central tendency used to determine the average annual percent increase in sales from one time period to another is the geometric mean.
(iii) The smallest measure of central tendency in a positively skewed distribution is the mode

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.	

Award: **1.00 point**

(i) The arithmetic mean (measure of central tendency) cannot be determined if the distribution has an open-ended class.
(ii) The measure of central tendency used to determine the average annual percent increase in sales from one time period to another is the arithmetic mean.
(iii) The smallest measure of central tendency in a positively skewed distribution is the mode

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and (ii) are correct statements but not (iii).
- → ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.	

(i) A small manufacturing company with 52 employees has annual salaries distributed such that the mean is $25,459, the median is $24,798 and the mode is $24,000. An additional foreman is hired at an annual salary of $50,700. The measure of central tendency that is most affected by the addition of this salary is the arithmetic mean.
(ii) In the relationship between the mean and median in a negatively skewed distribution the mean is less than the median.
(iii) In the relationship between the median and the mode in a positively skewed distribution, the median is greater than the mode.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

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(i) A small manufacturing company with 52 employees has annual salaries distributed such that the mean is $25,459, the median is $24,798 and the mode is $24,000. An additional foreman is hired at an annual salary of $50,700. The measure of central tendency that is most affected by the addition of this salary is the arithmetic mean.
(ii) In the relationship between the mean and median in a negatively skewed distribution the mean is less than the median.
(iii) In the relationship between the median and the mode in a positively skewed distribution, the median is smaller than the mode.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) A small manufacturing company with 52 employees has annual salaries distributed such that the mean is $25,459, the median is $24,798 and the mode is $24,000. An additional foreman is hired at an annual salary of $50,700. The measure of central tendency that is most affected by the addition of this salary is the median.
(ii) In the relationship between the mean and median in a negatively skewed distribution the mean is less than the median.
(iii) In the relationship between the median and the mode in a positively skewed distribution, the median is greater than the mode.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

(i) Five students were given a page of problems with the instructions to solve as many as they could in one hour. Five students solved the following number of problems: 12, 10, 8, 6 and 4. The arithmetic mean number of minutes required per problem is 7.5 minutes (average of 8 problems in an hour).
(ii) David Electronics had a profit of $10 million in 1998. Profit doubled from 1998 to 1999 and profit increased eight fold from 1999 to 2000. The annual geometric mean rate of growth from 1998 to 2000 was 300% (4 fold).
(iii) The difference between the highest and the lowest value in a set of data is called the range.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Hard	Learning Objective: 03-05 Identify the mode.	

Award: **1.00 point**

(i) Five students were given a page of problems with the instructions to solve as many as they could in one hour. Five students solved the following number of problems: 12, 10, 8, 6 and 4. The arithmetic mean number of minutes required per problem is 7.5 minutes (average of 8 problems in an hour).
(ii) David Electronics had a profit of $10 million in 1998. Profit doubled from 1998 to 1999 and profit increased eight fold from 1999 to 2000. The annual geometric mean rate of growth from 1998 to 2000 was 200% (3 fold).
(iii) The difference between the highest and the lowest value in a set of data is called the range.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Hard	Learning Objective: 03-05 Identify the mode.	

(i) Five students were given a page of problems with the instructions to solve as many as they could in one hour. Five students solved the following number of problems: 12, 10, 8, 6 and 4. The arithmetic mean number of minutes required per problem is 6.5 minutes (average of 7 problems in an hour).
(ii) David Electronics had a profit of $10 million in 1998. Profit doubled from 1998 to 1999 and profit increased eight fold from 1999 to 2000. The annual geometric mean rate of growth from 1998 to 2000 was 300% (4 fold).
(iii) The difference between the highest and the lowest value in a set of data is called the range.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Hard	Learning Objective: 03-05 Identify the mode.	

Award: **1.00 point**

(i) If the mean of a frequency distribution is smaller than the median and mode, the Pearson's coefficient of skewness would be negative.
(ii) The only time the variance equals the standard deviation is when both equal 1.
(iii) According to the Empirical Rule, 68 percent of the observations lie within plus and minus one standard deviation of the mean.

→ ◯ (i), (ii) and (iii) are all correct statements

◯ (i) and (ii) are correct statements but not (iii).

◯ (i) and (iii) are correct statements but not (ii).

◯ (ii) and (iii) are correct statements, but not (i).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.
Difficulty: Hard	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.	

Award: **1.00 point**

(i) If the mean of a frequency distribution is smaller than the median and mode, the Pearson's coefficient of skewness would be negative.
(ii) The only time the variance equals the standard deviation is when both equal 1.
(iii) According to the Empirical Rule, 90 percent of the observations lie within plus and minus one standard deviation of the mean.

- ○ (i), (ii) and (iii) are all correct statements
- → ○ (i) and (ii) are correct statements but not (iii).
- ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.
Difficulty: Hard	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.	

Award: **1.00 point**

(i) If the mean of a frequency distribution is smaller than the median and mode, the Pearson's coefficient of skewness would be negative.
(ii) The only time the variance equals the standard deviation is when both equal 1.
(iii) According to the Empirical Rule, 99 percent of the observations lie within plus and minus one standard deviation of the mean.

   ○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

   ○ (i) and (iii) are correct statements but not (ii).

   ○ (ii) and (iii) are correct statements, but not (i).

   ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.
Difficulty: Hard	Learning Objective: 03-08 Explain Chebyshev's theorem and the Empirical Rule.	

Award: **1.00 point**

(i) The standard deviation the positive square root of the variance.
(ii) The capacities of several metal containers are: 38, 20, 37, 64, and 27 litres. The range in litres is 44.
(iii) The sum of the deviations of each value from the mean equals zero.

→ ○ (i), (ii) and (iii) are all correct statements

   ○ (i) and (ii) are correct statements but not (iii).

   ○ (i) and (iii) are correct statements but not (ii).

   ○ (ii) and (iii) are correct statements, but not (i).

   ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-06 Explain and apply measures of dispersion.	

(i) The standard deviation the negative square root of the variance.
(ii) The capacities of several metal containers are: 38, 20, 37, 64, and 27 litres. The range in litres is 44.
(iii) The sum of the deviations of each value from the mean equals zero.

    ○ (i), (ii) and (iii) are all correct statements

    ○ (i) and (ii) are correct statements but not (iii).

    ○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

    ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-06 Explain and apply measures of dispersion.	

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(i) The standard deviation the positive square root of the variance.
(ii) The capacities of several metal containers are: 38, 20, 37, 64, and 27 litres. The range in litres is 24.
(iii) The sum of the deviations of each value from the mean equals zero.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and (ii) are correct statements but not (iii).
- → ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-06 Explain and apply measures of dispersion.	

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A study is made of the commissions paid to furniture salespersons. If the variance is computed, it would be measured in dollars squared.
(iii) The coefficient of variation is a measure of relative dispersion.

→ ○ (i), (ii) and (iii) are all correct statements

   ○ (i) and (ii) are correct statements but not (iii).

   ○ (i) and (iii) are correct statements but not (ii).

   ○ (ii) and (iii) are correct statements, but not (i).

   ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A study is made of the commissions paid to furniture salespersons. If the variance is computed, it would be measured in dollars squared.
(iii) The coefficient of skewness is a measure of relative dispersion.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

168.

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A study is made of the commissions paid to furniture salespersons. If the standard deviation is computed, it would be measured in dollars squared.
(iii) The coefficient of variation is a measure of relative dispersion.

- ◯ (i), (ii) and (iii) are all correct statements

- ◯ (i) and (ii) are correct statements but not (iii).

→ ◯ (i) and (iii) are correct statements but not (ii).

- ◯ (ii) and (iii) are correct statements, but not (i).

- ◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be -0.30.
(ii) Rainbow Trout, Inc., feeds fingerling trout in special ponds and markets them when they attain a certain weight. A group of 9 trout (considered the population) were isolated in a pond and fed a special food mixture called Grow Em Fast. At the end of the experimental period, the weights of the trout were (in grams): 124, 125, 123, 120, 124, 127, 125, 126 and 121. Another special mixture, Fatso 1B, was used in another pond. The mean of the population was computed to be 126.9 grams and the standard deviation was 1.20 grams. When these data are analysed, we discover that the food resulting in a more uniform weight is Fatso 1B.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be + 0.30.
(ii) Rainbow Trout, Inc., feeds fingerling trout in special ponds and markets them when they attain a certain weight. A group of 9 trout (considered the population) were isolated in a pond and fed a special food mixture called Grow Em Fast. At the end of the experimental period, the weights of the trout were (in grams): 124, 125, 123, 120, 124, 127, 125, 126 and 121. Another special mixture, Fatso 1B, was used in another pond. The mean of the population was computed to be 126.9 grams and the standard deviation was 1.20 grams. When these data are analysed, we discover that the food resulting in a more uniform weight is Fatso 1B.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and (ii) are correct statements but not (iii).

- ○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

171.   Award: **1.00 point**

The annual incomes of the five vice presidents of Elly's Industries are: $41,000, $38,000, $32,000, $33,000 and $50,000. The annual incomes of Unique, another firm similar to Elly's Industries, were also studied and found to have a mean of $38,900 and a standard deviation of $6,612. Which firm has the greater coefficient of variation?

→ ○ Elly's Industries

○ Uniquee

○ Both firms have the same coefficient of variation

○ We have not been given sufficient information to determine.

172.   Award: **1.00 point**

The means differ vastly. The annual incomes of the five vice presidents of Elly's Industries are: $41,000, $38,000, $32,000, $33,000 and $50,000. The annual incomes of Unique, another firm similar to Elly's Industries, were also studied and found to have a mean of $38,900 and a standard deviation of $6,612. Determine the coefficient of variation for each firm.

○ Elly's Industries=17, Unique =19

→ ○ Elly's Industries=19, Unique =17

○ Elly's Industries=16, Unique =18

○ Elly's Industries=18, Unique =17

Award: **1.00 point**

The lengths of stay on the cancer floor of Community Hospital were organized into a frequency distribution. The mean length was 28 days, the median 25 days and the modal length 23 days. The standard deviation was computed to be 4.2 days. Determine the Pearson's coefficient of skewness.

○ 2.41

○ -2.41

→ ○ 2.14

○ -2.14

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

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(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be -0.30.

(ii) Rainbow Trout, Inc., feeds fingerling trout in special ponds and markets them when they attain a certain weight. A group of 9 trout (considered the population) were isolated in a pond and fed a special food mixture called Grow Em Fast. At the end of the experimental period, the weights of the trout were (in grams): 124, 125, 123, 120, 124, 127, 125, 126 and 121. Another special mixture, Fatso 1B, was used in another pond. The mean of the population was computed to be 126.9 grams and the standard deviation was 1.20 grams. When these data are analysed, we discover that the food resulting in a more uniform weight is Fatso 1B.

(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the standard deviation of this distribution were computed, it would be measured in hours squared

- ○ (i), (ii) and (iii) are all correct statements
- → ○ (i) and (ii) are correct statements but not (iii).
- ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be -0.30.
(ii) Rainbow Trout, Inc., feeds fingerling trout in special ponds and markets them when they attain a certain weight. A group of 9 trout (considered the population) were isolated in a pond and fed a special food mixture called Grow Em Fast. At the end of the experimental period, the weights of the trout were (in grams): 124, 125, 123, 120, 124, 127, 125, 126 and 121. Another special mixture, Fatso 1B, was used in another pond. The mean of the population was computed to be 126.9 grams and the standard deviation was 5.20 grams. When these data are analysed, we discover that the food resulting in a more uniform weight is Fatso 1B.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

- ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be -0.30.
(ii) The Pearson's coefficient of skewness (Sk) measures the amount of skewness and may range from -3.0 to +3.0. It is computed by subtracting the median from the mean, multiplying the result by 3 and dividing by standard deviation.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

A company's human resource department was interested in the average number of years that a person works before retiring. The sample of size 11 follows:

12	16	18	19	21	21	21	22	24	24	26

(i) The mode is 21.
(ii) The arithmetic mean is 20.4.
(iii) The median is 21.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

(i) The mode is 3.
(ii) The arithmetic mean is 20.4.
(iii) The median is 21.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

(i) The mode is 21.
(ii) The arithmetic mean is 20.4.
(iii) The median is 23.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

(i) Based on the values of the arithmetic mean, median, and mode, the distribution is most likely symmetrical.
(ii) The arithmetic mean is 20.4.
(iii) The median is 21.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

A sample of five flooring installers, each carrying three types of flooring, was taken and the price per square metre (to the nearest cent) was recorded for each type of flooring, as shown in the table below.

	INSTALLER				
Flooring Type	1	2	3	4	5
Laminate Floor	$1.27	$1.27	$1.27	$1.27	$1.27
Polyester Carpet	.36	1.37	1.38	1.38	1.40
Nylon Carpet	1.47	1.49	1.50	1.50	1.59

181. Award: **1.00 point**

(i) The range for laminate flooring is 0 or none.
(ii) The range for polyester carpet is $0.04 or 4 cents.
(iii) The mean deviation for laminate flooring is 0.

- ⃝ (i), (ii) and (iii) are all correct statements
- ⃝ (i) and (ii) are correct statements but not (iii).
→ ⃝ (i) and (iii) are correct statements but not (ii).
- ⃝ (ii) and (iii) are correct statements, but not (i).
- ⃝ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

182. Award: **1.00 point**

(i) The range for laminate flooring is 0 or none.
(ii) The mean deviation for laminate flooring is 0.
(iii) The range for nylon carpet is $0.12 or 12 cents.

→ ⃝ (i), (ii) and (iii) are all correct statements
- ⃝ (i) and (ii) are correct statements but not (iii).
- ⃝ (i) and (iii) are correct statements but not (ii).
- ⃝ (ii) and (iii) are correct statements, but not (i).
- ⃝ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

183.

(i) The range for laminate flooring is 0 or none.
(ii) The variance for laminate flooring is 0.
(iii) The range for nylon carpet is $0.12 or 12 cents.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 0 or none.
(ii) The variance for laminate flooring is 1.
(iii) The range for nylon carpet is $0.12 or 12 cents.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 0 or none.
(ii) The variance for laminate flooring is 0.
(iii) The range for nylon carpet is $0.15 or 15 cents.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.

Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 0 or none.
(ii) The standard deviation for nylon carpet is 4.64 cents
(iii) The range for nylon carpet is $0.12 or 12 cents.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 0 or none.
(ii) The standard deviation for nylon carpet is 4.64 cents
(iii) The range for nylon carpet is $0.15 or 15 cents.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 0 or none.
(ii) The standard deviation for nylon carpet is 6.64 cents
(iii) The range for nylon carpet is $0.12 or 12 cents.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The range for laminate flooring is 1.
(ii) The standard deviation for nylon carpet is 4.64 cents
(iii) The range for nylon carpet is $0.12 or 12 cents.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The standard deviation for laminate flooring is 0.
(ii) The standard deviation for polyester carpet is $1.48.
(iii) The range for polyester carpet is $1.04.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and (ii) are correct statements but not (iii).
- → ○ (i) and (iii) are correct statements but not (ii).
- ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

(i) The standard deviation for laminate flooring is 0.
(ii) The standard deviation for polyester carpet is $1.88.
(iii) The range for polyester carpet is $1.04.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

The weights of a sample of 100 boxes being shipped by Air France from Toronto to Paris are:

Weights (kg)	Number
50 to under 75	4
75 to under 100	16
100 to under 125	21
125 to under 150	46
150 to under 175	13

(i) Correct to two decimal places, the sample standard deviation is approximately 25.99.
(ii) Correct to two decimal places, the sample variance is approximately 675.25.
(iii) The range is approximately 125.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

(i) Correct to two decimal places, the sample standard deviation is approximately 25.99.
(ii) Correct to two decimal places, the sample variance is approximately 675.25.
(iii) The range is approximately 100.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Hard	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

(i) Correct to two decimal places, the sample standard deviation is approximately 52.98.
(ii) Correct to two decimal places, the sample variance is approximately 675.25.
(iii) The range is approximately 125.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-06 Explain and apply measures of dispersion.
Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

A telemarketing firm is monitoring the performance of its employees based on the number of sales per hour. One employee had the following sales for the last 20 hours

| 9 | 5 | 2 | 6 | 5 | 6 | 4 | 4 | 4 | 7 |
| 4 | 4 | 7 | 8 | 4 | 4 | 5 | 5 | 4 | 8 |

195.

Award: **1.00 point**

(i) The median for the distribution of number of sales per hour is 5 sales per hour.
(ii) The first quartile for the distribution of number of sales per hour is 4 sales per hour.
(iii) For the distribution of number of sales per hour, 50% of the observations are between 4 and 6.5.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-04 Determine the median.
Difficulty: Medium	Learning Objective: 03-10 Identify and compute measures of position.

(i) The median for the distribution of number of sales per hour is 6 sales per hour.
(ii) The first quartile for the distribution of number of sales per hour is 4 sales per hour.
(iii) For the distribution of number of sales per hour, 50% of the observations are between 4 and 6.5.

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and, (ii) are correct statements but not (iii).

- ○ (i) and, (iii) are correct statements but not (ii).

- → ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-04 Determine the median.
Difficulty: Medium	Learning Objective: 03-06 Explain and apply measures of dispersion.

(i) The median for the distribution of number of sales per hour is 5 sales per hour.
(ii) The first quartile for the distribution of number of sales per hour is 4 sales per hour.
(iii) For the distribution of number of sales per hour, 50% of the observations are between 3 and 7.5.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-04 Determine the median.
Difficulty: Medium	Learning Objective: 03-10 Identify and compute measures of position.

198.

(i) The median for the distribution of number of sales per hour is 7 sales per hour.
(ii) The first quartile for the distribution of number of sales per hour is 7 sales per hour.
(iii) For the distribution of number of sales per hour, 50% of the observations are between 3 and 7.5.

○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

→ ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-04 Determine the median.
Difficulty: Medium	Learning Objective: 03-10 Identify and compute measures of position.

199.

Calculate the Software Coefficient of Skewness for the following data:
5 5 7 7 7.

○ 0.61

→ ○ -0.61

○ 0

○ 2.1

○ -2.1

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

200. Award: **1.00 point**

In the calculation of the arithmetic mean for grouped data, which value is used to represent all the values in a particular class?

- ○ The upper limit of the class
- ○ The lower limit of the class
- ○ The frequency of the class
- ○ The cumulative frequency preceding the class
- → ○ The midpoint of the class

References

Multiple Choice	Difficulty: Medium	Learning Objective: 03-12 Compute the mean; median; and standard deviation of grouped data.

Award: **1.00 point**

The following printout is a summary of number of bedrooms in homes for sale in Regina:

Descriptive statistics

	No of Bedrooms
count	99
mean	3.73
sample variance	1.12
sample standard deviation	1.06
minimum	0
maximum	7
range	7
skewness	0.04
kurtosis	2.11
coefficient of variation (CV)	28.38%
1st quartile	3.00
median	4.00
3rd quartile	4.00
interquartile range	1.00
mode	4.00

What can we determine from this printout?

○ The mean number of bedrooms is more than both the median and modal number.

→ ○ Most of the houses have 4 bedrooms.

○ The modal number of bedrooms is affected by a few houses that must have a large number of bedrooms.

○ More than half of the houses have less than 3 bedrooms.

References

| Multiple Choice | Learning Objective: 03-02 Identify and compute the arithmetic mean. | Learning Objective: 03-05 Identify the mode. |

202.   Award: **1.00 point**

i. The sum of the deviations from the mean for the set of numbers 4, 9 and 5 will equal zero.
ii. If there is an even number of ungrouped values, the median is found by arranging them from low to high and then determining the arithmetic mean of the two middle values.
iii. For salaries of $102,000, $98,000, $35,000, $106,000 and $101,000, the median would be an appropriate average.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and, (ii) are correct statements but not (iii).

○ (i) and, (iii) are correct statements but not (ii).

○ (ii) and, (iii) are correct statements but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.

Award: **1.00 point**

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A sample of the homes currently offered for sale revealed that the mean asking price is $75,900, the median $70,100 and the modal price is $67,200. The standard deviation of the distribution is $5,900. The Pearson's coefficient of skewness is 2.95
(iii) The coefficient of variation is a measure of relative dispersion.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

204.

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A sample of the homes currently offered for sale revealed that the mean asking price is $75,900, the median $70,100 and the modal price is $67,200. The standard deviation of the distribution is $5,900. The Pearson's coefficient of skewness is 2.95
(iii) The coefficient of skewness is a measure of relative dispersion.

◯ (i), (ii) and (iii) are all correct statements

➔ ◯ (i) and (ii) are correct statements but not (iii).

◯ (i) and (iii) are correct statements but not (ii).

◯ (ii) and (iii) are correct statements, but not (i).

◯ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

205. Award: **1.00 point**

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of skewness.
(ii) A sample of the homes currently offered for sale revealed that the mean asking price is $75,900, the median $70,100 and the modal price is $67,200. The standard deviation of the distribution is $5,900. The Pearson's coefficient of skewness is 2.95
(iii) The coefficient of variation is a measure of relative dispersion.

- ○ (i), (ii) and (iii) are all correct statements
- ○ (i) and (ii) are correct statements but not (iii).
- ○ (i) and (iii) are correct statements but not (ii).
- → ○ (ii) and (iii) are correct statements, but not (i).
- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

206.

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A sample of the homes currently offered for sale revealed that the mean asking price is $75,900, the median $70,100 and the modal price is $67,200. The standard deviation of the distribution is $5,900. The Pearson's coefficient of skewness is 3.95
(iii) The coefficient of variation is a measure of relative dispersion.

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) If two sets of data are in different units, we can compare the dispersion by using coefficient of variation.
(ii) A sample of the homes currently offered for sale revealed that the mean asking price is $75,900, the median $70,100 and the modal price is $67,200. The standard deviation of the distribution is $5,900. The Pearson's coefficient of skewness is 2.95
(iii) The coefficient of variation is a measure of central tendency.

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be +0.20.
(ii) The Pearson's coefficient of skewness (Sk) measures the amount of skewness and may range from -3.0 to +3.0. It is computed by subtracting the median from the mean, multiplying the result by 3 and dividing by standard deviation.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

→ ○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.

Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

Award: **1.00 point**

(i) The research director of a large oil company conducted a study of the buying habits of consumers with respect to the amount of gasoline purchased at full-service pumps. The arithmetic mean amount is 11.5 gallons and the median amount is 11.95 litres. The standard deviation of the sample is 4.5 litres. The Pearson's coefficient of skewness can be calculated to be -0.30.
(ii) The Pearson's coefficient of skewness (Sk) measures the amount of skewness and may range from -3.0 to +3.0. It is computed by subtracting the median from the mean, multiplying the result by 3 and dividing by the variance.
(iii) A study has been made of the number of hours a light bulb will operate before it burns out. If the variance of this distribution were computed, it would be measured in hours squared

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

- ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-07 Compute and explain the variance and the standard deviation.
Difficulty: Hard	Learning Objective: 03-09 Compute and describe the coefficient of skewness and the coefficient of variation.

(i) Based on the values of the arithmetic mean, median, and mode, the distribution is most likely symmetrical.
(ii) The arithmetic mean is 20.4.
(iii) The median and mode are both 21.

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

Award: **1.00 point**

(i) Based on the values of the arithmetic mean, median, and mode, the distribution is most likely symmetrical.
(ii) The arithmetic mean is 24.0.
(iii) The median is 21.

- ○ (i), (ii) and (iii) are all correct statements

- ○ (i) and (ii) are correct statements but not (iii).

→ ○ (i) and (iii) are correct statements but not (ii).

- ○ (ii) and (iii) are correct statements, but not (i).

- ○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

The information below shows the summary statistics of data adapted from Statistics Canada, regarding gasoline prices from urban cities across Canada.

Average retail price for gasoline across Canada	
2013 (cents per litre)	
Mean	123.5647
Standard Error	2.403489
Median	125.8
Mode	#N/A
Standard Deviation	9.90984
Sample Variance	98.20493
Kurtosis	-0.55113
Skewness	-0.56333
Range	33.3
Minimum	105.6
Maximum	138.9
Sum	2100.6
Count	17

(i) This data is based on values from 17 cities.
(ii) The average gas price in 2013 across the country based on this sample was $123.56
(iii) More than 50% of the cities reported average gas prices over $1.25 per litre

→ ○ (i), (ii) and (iii) are all correct statements

○ (i) and (ii) are correct statements but not (iii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.
Difficulty: Hard	Learning Objective: 03-04 Determine the median.	

The information below shows the summary statistics of data adapted from Statistics Canada, regarding gasoline prices from urban cities across Canada.

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Kurtosis	-0.55113
Skewness	-0.56333
Range	33.3
Minimum	105.6
Maximum	138.9
Sum	2100.6
Count	17

(i) This data is based on values from 17 cities.
(ii) The average gas price in 2013 across the country based on this sample was $1.2356
(iii) 50% of the cities reported average gas prices over $1.23 per litre

○ (i), (ii) and (iii) are all correct statements

→ ○ (i) and (ii) are correct statements but not (iii).

○ (i) and (iii) are correct statements but not (ii).

○ (ii) and (iii) are correct statements, but not (i).

○ (i), (ii) and (iii) are all false statements.

References

Multiple Choice	Learning Objective: 03-02 Identify and compute the arithmetic mean.	Learning Objective: 03-05 Identify the mode.

Difficulty: Hard

Learning Objective:
03-04 Determine
the median.

Difficulty: Hard

Learning Objective:
03-04 Determine
the median.