Stat. 

تلخيصي 17

Ch-3

شرح مع أسئلة الاختبارات

ملخصات يوسف زويل

دعم فوري متواصل لأي استفسار على الواتس 00966557999301
Measures of Central Tendency

Macabees of the central tendency

Summarize data, using measures of central tendency, such as the mean, median, mode, midrange and The Weighted Mean

A statistic is a characteristic or measure obtained by using the data values from a sample.

A parameter is a characteristic or measure obtained by using all the data values from a specific population

1- A characteristic or measure obtained by using the data values from a sample is called a ………

A. Statistic      B. Quartile      C. Percent      D. Parameter

2- A characteristic or measure obtained by using the data values from a population is called a ………

A. Statistic      B. Quartile      C. Percent      D. Parameter
The Mean

المتوسط الحسابي أو الوسط

The mean is the sum of the values, divided by the total number of values.

The mean for the sample

\[
\bar{x} = \frac{\sum x}{n} = \frac{x_1 + x_2 + \cdots + x_n}{n}
\]

The symbol \( \bar{x} \) represents the sample mean

The mean for a population,

\[
\mu = \frac{\sum X}{N} = \frac{X_1 + X_2 + \cdots + X_n}{N}
\]

The Greek letter symbol \( \mu \) represents the population mean

The mean, in most cases, is not an actual data value. The mean should be rounded to one more decimal place than occurs in the raw data.
3- ........ is the symbols of mean in the sample

A. $\bar{x}$  
B. $\sigma^2$  
C. $\mu$  
D. $S^2$

4- The mean of following data 10, 15, 12, 9, 2, 6 is

A. 12  
B. 9  
C. 54  
D. 10.9

5- If the mean of 5 values equals 64, then $\sum x = ?$

A. 12.8  
B. 320  
C. 64  
D. 200

6- If the mean of the values 15, 6, x, 4, 20 is 10.6, then the value of x must be ...

A) 8  
B) 53  
C) 11.25  
D) 13.25
7- The mean of following data is

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5–10.5</td>
<td>1</td>
</tr>
<tr>
<td>10.5–15.5</td>
<td>2</td>
</tr>
<tr>
<td>15.5–20.5</td>
<td>3</td>
</tr>
<tr>
<td>20.5–25.5</td>
<td>5</td>
</tr>
<tr>
<td>( n )</td>
<td>11</td>
</tr>
</tbody>
</table>

is A) 8   B) 53   C) 11.25   D) 18.45
The Median

The median is the midpoint of the data set.

الوسيط هو قيمة المنتصف لمجموعة البيانات

The symbol for the median is MD

خطوات ايجاد الوسيط

1- نرتب البيانات تصاعديا أو تنازليا

2- إذا كان عدد قيم البيانات فردي odd تكون القيمة في المنتصف هي الوسيط

3- إذا كان عدد قيم البيانات ذوجي even يكون الوسيط هو متوسط القيمتين اللتين بالمنتصف

8- What is the median of following data 5, 7, 10, 3, 8?

A. 7.5
B. 7
C. 6
D. 10
9- The number of rooms in the seven hotels in a city is 713, 300, 618, 595, 311, 401, and 292. The median is

A) 543  B) 401  C) 212  D) 413

10- The ages in years of 8 patients who are randomly selected from a certain hospital are 12, 30, 5, 20, 5, 36, 28, 21. The median value of the patient's age is...

A) 22.5  B) 20.5  C) 30.5  D) 12.5

11- The average grade of a group of students in a statistics class is called...


12- If you have the following observations: 13, 10, k, 5, 17, then their median value must be...

A) 10 or k or 13  B) 13 or k  C) k  D) k or 10
The mode is the value that occurs most often in a data set.

ملاحظات هامة:

1- عند وجود قيمة واحدة لها أعلى تكرار تسمى البيانات أحادية المنوال.

- A data set with one value that occurs with greatest frequency is said to be unimodal.
  e.g., 3, 4, 2, 6, 4, 1, 5 $\rightarrow$ mode $= 4$

2- عند وجود قيمتين لهما أعلى تكرار معاً تسمى البيانات ثنائية المنوال.

- A data set with two values that occur with greatest frequency is said to be bimodal.
  e.g., 3, 4, 2, 6, 4, 1, 2 $\rightarrow$ mode $= 2, 4$

3- عند وجود أكثر من قيمتين لها أعلى تكرار معاً تسمى البيانات عديدة المنوال.

- A data set with more than two values that occur with greatest frequency is said to be multimodal.
  e.g., 6, 3, 4, 2, 6, 4, 1, 2, 5, 6, 4, 2 $\rightarrow$ mode $= 2, 4, 6$

4- عند اختلاف البيانات جميعاً أو تساوت كلها في التكرارات تسمى البيانات عديمة المنوال.

- When all the values in a data set occur with the same frequency is said to have no mode.
  e.g., 3, 4, 2, 3, 6, 4, 1, 2, 1, 6 $\rightarrow$ no mode
  3, 4, 2, 6, 5, 1, 7, 8 $\rightarrow$ no mode
13- the mode for the following data 2 2 3 2 3 6 3 6 6 is

A. 2,3 and 6  
B. 2  
C. No mode  
D. 3 and 6

14- The measures of central tendency for the following data 1,3,9,11,2 are:

A. Mean=5.2  median=3  mode=no mode  
B. Mean=6.5  median=9  mode=zero  
C. Mean=2  median=3  mode=zero  
D. Mean=5.5  median=10  mode=no mode

15.- The cost of four toys in a certain toy shop is given:

$15,$20,$32,$1250  Which measure of central tendency should be used?

A. Mode  
B. Mean  
C. Midrange  
D. Median
16-The ..........is a measure of central tendency should be used when the data are qualitative.

A. Median  
B. Range  
C. Mean  
D. Mode

17-What is the appropriate measure for the data that represents the marital status (married, divorced, widowed, single)

A. Median  
B. Range  
C. Mean  
D. Mode

18-The measure of central tendency that is appropriate for the following data set is the... 7500, 4500, 6000, 3000, 4000, 5000, 70000 is

A) mode.  B) Mean.  C) median.  D) Standard deviation
19. The number of days absent by a group of employees in a certain hospital during the summer months are as the following:

9, 6, 7, 2, 9, 2, 7, 1, 2, 3

The data is said to ...

A) Have no mode.  **B) be unimodal.**  C) be bimodal.  D) be multimodal

20. The modal class for the following frequency distribution is

<table>
<thead>
<tr>
<th>Class</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.5–15.5</td>
<td>2</td>
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<tr>
<td>15.5–20.5</td>
<td>3</td>
</tr>
<tr>
<td>20.5–25.5</td>
<td>5</td>
</tr>
<tr>
<td>25.5–30.5</td>
<td>4</td>
</tr>
</tbody>
</table>

A) First class  B) second class.  **C) third class**  D) forth class
The Midrange

The **midrange** is defined as the sum of the lowest and highest values in the data set, divided by 2.

The symbol **MR** is used for the midrange.

\[ MR = \frac{\text{lowest value} + \text{highest value}}{2} \]

21-The ages in years of 8 patients who are randomly selected from a certain hospital are 12, 30, 5, 20, 5, 36, 28, 21

The **midrange** value of the patient's age is...

A) 22.5  B) **20.5**  C) 30.5  D) 12.5

22-The **midrange** for the following data is

```
a) 1 0 1 6
 2
 3 0 3 5 5
 4 4 7
```

A) 22.5  B) **28.5**  C) 30.5  D) 12.5
The Weighted Mean

The weighted mean is used when the values in a data set are not all equally represented.

The weighted mean of a variable $X$ is found by multiplying each value by its corresponding weight and dividing the sum of the products by the sum of the weights.

$$
\bar{x}_w = \frac{x_1w_1 + x_2w_2 + \cdots + x_nw_n}{w_1 + w_2 + \cdots + w_n} = \frac{\sum xw}{\sum w}
$$

Where $w_1, w_2, \ldots, w_n$ are the weights for $x_1, x_2, \ldots, x_n$

23-A student received an A in English Composition (3 credits), a C in Introduction to Psychology (3 credits), a B in Biology (4 credits), and a D in Physical Education (2 credits). Assuming A = 4 grade points, B = 3 grade points, C = 2 grade points, D = 1 grade point, and F = 0 grade points, find the student’s grade point average.

A) 2.5  B) 2.67  C) 3.5  D) 1.5
The following table represents the final grade of a student for the last term. His average grade will be …

<table>
<thead>
<tr>
<th>درجة</th>
<th>مكتسبة</th>
<th>الفصل الثاني</th>
<th>2009/2010</th>
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<tr>
<td>اللغة العربية</td>
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<td>ARAB</td>
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<tr>
<td>مهارات حاسب</td>
<td>3</td>
<td>100</td>
<td>CPIT</td>
</tr>
<tr>
<td>لغة إنجليزية أداب واقتصاد</td>
<td>0</td>
<td>101</td>
<td>ELCA</td>
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<tr>
<td>الثقافة الإسلامية</td>
<td>2</td>
<td>101</td>
<td>ISLS</td>
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<tr>
<td>الرياضيات للتخصصات النظرية</td>
<td>3</td>
<td>111</td>
<td>MATH</td>
</tr>
</tbody>
</table>

A) 78.25  B) 78.20  C) 77.73  D) 666.82
Distribution Shapes

Frequency distributions have many shapes. The three most important shapes are positively skewed, symmetric, and negatively skewed.

التوزيعات التكرارية لها أشكال عديدة. الأشكال الثلاث الأكثر شهرة هي:

- **Positively skewed** or right-skewed: In a positively skewed or right-skewed distribution, the majority of the data values fall to the left of the mean. \( \text{Mean} > \text{Median} > \text{Mode} \)

- **Symmetric**: In a symmetric distribution, the data values are evenly distributed on both sides of the mean. \( \text{Mean} = \text{Median} = \text{Mode} \)

- **Negatively skewed** or left-skewed: When the majority of the data values fall to the right of the mean. \( \text{Mean} < \text{Median} < \text{Mode} \)
25-When the distribution is the positive skewed; the relationship of mean, median and mode will be:

A. Mean=Median=Mode

B. Mean>Median>Mode

C. Mean<Median<Mode

D. The exact relationship cannot be determined

26-When the majority of the data values fall to the right of the mean; the relationship of mean, median and mode will be:

A. Mean=Median=Mode

B. Mean>Median>Mode

C. Mean<Median<Mode

D. The exact relationship cannot be determined

27-If the data values are evenly distributed on both sides of the mean; the relationship of mean, median and mode will be:

A. Mean=Median=Mode

B. Mean>Median>Mode

C. Mean<Median<Mode

D. The exact relationship cannot be determined

28. If the mode < median < mean, then the distribution shape of the data is ...........

a) left skewed    b) right skewed    c) symmetrical    d) bimodal
29. - If the majority of data values fall to the left of the mean, and the median is 30, then:

a) mode > 30  
b) mode < 30  
c) mode = 30  
d) mode = mean
Describe data, using measures of variation, such as the range, variance, and standard deviation.

**Range**

The range is the highest value minus the lowest value. The symbol \( R \) is used for the range. \[ R = \text{highest value} - \text{lowest value} \]

30 The ages of a department instructors are shown in the following stem and leaf plot:

```
 3 | 0 0 0 3 3 3 7 7 7  
 4 | 2 2 2 2 6 6 6 6 8 8 8 8  
 5 | 0 0 0 0 5 5 5 5 7 7 7  
 6 | 1 1 1 2 2 4 6 6 6 7 6 7  
 7 | 4 4 4 6 6 6 9  
 8 | 3 7 9  
```

1 The range of the raw data for the above stem and leaf plot is ...
A) 9  
B) 6  
C) 5  
D) 59

2 The raw data set for the stem and leaf plot is called ...
A) unimodal.  
B) bimodal.  
C) multimodal.  
D) trimodal.
The variance is the average of the squares of the distance of each value from the mean.

The symbol for the population variance is $\sigma^2$

$$\sigma^2 = \frac{\sum (X - \mu)^2}{N}$$

The symbol for the sample variance is $s^2$

$$s^2 = \frac{\sum (X - \bar{X})^2}{n} = \frac{n (\sum X^2) - (\sum X)^2}{n(n-1)} = \frac{(\sum X^2) - \left(\frac{\sum X}{n}\right)^2}{n-1}$$

The standard deviation is the square root of the variance.

The symbol for the Population standard deviation is $\sigma$

$$\sigma = \sqrt{\sigma^2}$$

The symbol for the sample standard deviation is $s$

$$s = \sqrt{s^2}$$
31. The symbols used to represent the sample variance is:
   A) $S$  
   B) $\sigma$  
   C) $S^2$  
   D) $\sigma^2$

32. If a set of 9 numbers has standard deviation 10, then it's variance is
   A) 100.00  
   B) 3.33  
   C) 33.33  
   D) 30.00

33. Find the standard deviation using the available information: \( \sum X = 332, \sum X^2 = 17878, n = 8 \)
   a) 22.638  
   b) 512.500  
   c) 585.714  
   d) 24.202
34- Find the mean and sample standard deviation for the following data set:

10, 5, 15, 20, 30, \( \sum x^2 = 1650 \)

A. mean = 16, standard deviation = 18.17  
B. mean = 16, standard deviation = 9.62  
C. mean = 16, standard deviation = 92.5  
D. mean = 16, standard deviation = 330

35- Determine the standard deviation for this sample:

0, 1, 3, 5, 2

A) 3.7  B) 1.9  C) 5  D) 0.4
Coefficient of Variation

Coefficient of variation is the statistic that allows used to compare standard deviations for tow data sets when the units are different.

The coefficient of variation, denoted by $C\text{Var}$, is the standard deviation divided by the mean. The result is expressed as a percentage.

$$C\text{Var} = \frac{s}{\overline{X}} \times 100\% = \cdots \%$$

36. When we want to compare the variability of students' grade and height, we should use the .
A) standard deviation. B) variance. C) coefficient of variation. D) range

37. If the $C\text{Var}$ for English final examination was 6.9% and $C\text{Var}$ for History final examination was 4.9%. Compare The variations.

A. The English class was more variable
B. The History class was more variable
C. Both of classes has the same variation
D. Cannot determined
38- The mean of the number of sales of houses over a 3-month period is 56, and variance is 36, then the coefficient of variation is:

A. 10.7%  
B. 0.643%  
C. 64.3%  
D. 0.107%

39. Given two data sets A and B such that $\bar{X}_A = 55, S_A = 13$ and $\bar{X}_B = 55, S_B = 17$. Which data set is more variable than the other?

a) Data set A is more variable than B.  
b) Both data sets are the same.  
c) Data set B is more variable than A.  
d) It cannot be determined.

Uses of the Variance and Standard Deviation

1. Variances and standard deviations can be used to determine the spread of the data. If the variance or standard deviation is large, the data are more dispersed. This information is useful in comparing two (or more) data sets to determine which is more variable.

2. The variance and standard deviation are used to determine the number of data values that fall within a specified interval in a distribution. For example, for any distribution, at least 75% of the data values will fall within 2 standard deviations of the mean.
Measures of Position

مقاييس الموضع

Identify the position of a data value in a data set,

Using various measures of position,

such as z score or standard score – percentiles, deciles, and quartiles

تحديد موضع قيمة بين قيم مجموعة بيانات، باستخدام مقاييس مختلفة للموضع

مثل المعدل المعياري، المنويات، العشريات، الربعيات

Standard Scores

المعدل المعياري

Number of standard deviations that a data value is above or below the mean

A z score or standard score for a value is obtained by subtracting the mean from the value and dividing the result by the standard deviation.

The symbol for a standard score is z.

The formula is

\[ Z = \frac{x - \bar{x}}{s} \]

\( Z \) \quad z score or standard score

\( x \) \quad the value or the score

\( \bar{x} \) \quad the mean

\( s \) \quad the standard deviation
40. Find the Z-score for the value 75, when the mean is 80 and the standard deviation is 5.

A. $Z = -2.27$  
B. $Z = -1$  
C. $Z = 1$  
D. $Z = 2.27$

41. The score of 6 is 2 standard deviations below the mean, then the value of ...........

a) $\bar{X} > 6$    
b) $\bar{X} < 6$    
c) $\bar{X} = 6$    
d) $\bar{X} = 0$

42. Find $Z$ if $X = 17$, $\bar{X} = 21$ and $s^2 = 9$.

a) 1.33   
b) 12.67   
c) -1.33   
d) -12.67

43. If the mean of a set of data is 19 and a value $X = 23.5$ has a $z$-score of 0.75, then the variance must be ...

A) 11.39   
B) 6     
C) 3.38   
D) 36
44 If a student scored \( X \) points on a test where the mean score was 86, the standard deviation was 4, and the student's \( z \)-score was 2.5 then \( X \) must be ...
(A) 96  (B) 76  (C) 4  (D) 24

45 Which score indicates the highest relative position?
   a- A score of 3.2 on a test with mean 4.6 and standard deviation 1.5.
   b- A score of 55 on a test with mean 65 and standard deviation 10.
   c- A score of 630 on a test with mean 800 and standard deviation 200.
   d- A score of 43 on a test with mean 50 and standard deviation 5.

46 For the mathematics part of the SAT the mean is 514 with a standard deviation of 113, and for the mathematics part of the ACT the mean is 27 with a standard deviation of 5.1. Ali scores a 660 on SAT and a 20.6 on the ACT. Determine on which test he performed better.
   A) SAT has a higher score than ACT.
   B) ACT has a higher score than SAT.
   C) both exam have the same scores.
   D) the higher score can not be determine.
Percentiles

It used to indicate the position of an individual in a group

Percentiles divide the data into 100 equal groups

47: A teacher gives a 30-point test to 12 students. The scores are shown here: 20, 2, 12, 7, 25, 5, 21, 19, 22, 30, 17, 10

1- the percentile rank of a score of 17 is

(a) 45.8%  (b) 15.8%  (c) 41.2%  (d) 65.8%

Score=17

\[
p = \frac{\text{number of values below the score} + 0.5}{\text{total values}} \times 100
\]

\[
= \frac{5 + 0.5}{12} \times 100 = 45.8\%
\]

2- the percentile rank of a score of 22 is

(a) 45.4%  (b) 85.8%  (c) 79.2%  (d) 45.8%

Score=22

\[
p = \frac{9 + 0.5}{12} \times 100 = 79.2\%
\]
3- the value corresponding to the 30th percentile is

(a) 11   (b) 13   (c) 25   (d) 10

2, 5, 7, 10, 12, 17, 19, 20, 21, 22, 25, 30

Percentile = 30%

\[ c = \frac{n \cdot p}{100} = \frac{12 \times 30}{100} = 3.6 = 4 \]

If \( c \) is not a whole number, round up to the next whole number. Starting at the lowest value, count over to the number that corresponds to the rounded-up value.  

Score = 10

4- the value corresponding to the 50th percentile is

(a) 20  (b) 18  (c) 23  (d) 28

2, 5, 7, 10, 12, 17, 19, 20, 21, 22, 25, 30

Percentile = 50%

\[ c = \frac{n \cdot p}{100} = \frac{12.50}{100} = 6 \]

If \( c \) is a whole number, use the value halfway between the \( c^{th} \) and \((c + 1)^{st}\) values when counting up from the lowest value.

\[ \text{Score} = \frac{17 + 19}{2} = 18 \]
Quartiles divide the distribution into four groups, separated by $Q_1$, $Q_2$, $Q_3$. Note that $Q_1$ is the same as the 25th percentile; $Q_2$ is the same as the 50th percentile, or the median; $Q_3$ corresponds to the 75th percentile, as shown.

**Quartiles** can be found as follow:

1. Arrange the data in order from lowest to highest.
2. Find the median of the data values ($Q_2$).
3. Find the median of the data values that fall below $Q_2$ ($Q_1$).
4. Find the median of the data values that fall above $Q_2$ ($Q_3$).

Find $Q_1$, $Q_2$, and $Q_3$ for the following data set: 7, 21, 32, 38.

A) $Q_1 = 14$, $Q_2 = 26.5$, and $Q_3 = 35$
B) $Q_1 = 10$, $Q_2 = 25$, and $Q_3 = 36$
C) $Q_1 = 5$, $Q_2 = 20$, and $Q_3 = 39$
D) $Q_1 = 14$, $Q_2 = 25$, and $Q_3 = 25$
Deciles divide the distribution into 10 groups, as shown. They are denoted by $D_1$, $D_2$, etc, and $D_1$ corresponds to $P_{10}$; $D_2$ corresponds to $P_{20}$.

Deciles can be found by using the formulas given for percentiles.
Outliers

An outlier is an extremely high or an extremely low data value when compared with the rest of the data values.

خطوات ايجاد القيمة المتطرفة أو الشاذة

Outliers can be identified as follows:

1. Arrange the data in order and find \( Q_1 \) and \( Q_3 \).
2. Find the interquartile range: \( IQR = Q_3 - Q_1 \).
3. The values that are smaller than \( Q_1 - (1.5)(IQR) \) or larger than \( Q_3 + (1.5)(IQR) \) are called outliers.

49-The data value that is smaller than \( Q_1 - (1.5) \text{IQR} \) is said to be:
   A) Minimum  B) Median  C) Quartile  D) Outlier

50-The data value that is greater than \( Q_3 + (1.5) \text{IQR} \) is said to be:
   A) Minimum  B) Median  C) Quartile  D) Outlier

51 All the values in a dataset are between 6 and 15, except for one value of 85. That value 85 is likely to be
   A) the range  B) an outlier  C) the mean  D) the boxplot

52 Use the following data set: 5, 15, 3, 16, 20, 14, 5, 11, 9 to answer questions

1. Find the third quartile, \( Q_3 \).
   a) 9  b) 15.5  c) 5.5  d) 11

2. Find the interquartile range, \( IQR \).
   a) 12.5  b) 15.75  c) -1  d) 10.5

3. Find an outlier if any.
   a) -10.75  b) 20  c) 31.25  d) no outliers
Exploratory Data Analysis

التحليل الاستكشافي للبيانات

In EDA data can be organized using a stem and leaf plot.

1- The measure of central tendency used in EDA is the median.

2- The measure of variation used in EDA is the interquartile range Q3 - Q1

53- For the data below

<table>
<thead>
<tr>
<th>3</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>8</td>
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<tr>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>3 5 6</td>
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<td>7</td>
<td>2 3 4 4 5 6 8</td>
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<td>15</td>
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<td>16</td>
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</tbody>
</table>

1- The measure of central tendency is

A) Minimum  B) Median  C) Quartile  D) Outlier

2- The measure of variation is

A) Minimum  B) Median

C) Quartile  D) Interquartile range
In EDA the data are represented graphically using a boxplot.

The Five-Number Summary and Boxplots

A boxplot can be used to graphically represent the data set. These plots involve five specific values:

1. The lowest value of the data set (minimum value)
2. $Q_1$
3. The median
4. $Q_3$
5. The highest value of the data set (maximum value)
Information Obtained from a Boxplot

1- from the box:-

a. If the median is near the center of the box, 
The distribution is approximately symmetric.
b. If the median falls to the left of the center of the box, 
The distribution is positively skewed.
c. If the median falls to the right of the center, 
The distribution is negatively skewed.

2. from the lines:-

a. If the lines are about the same length, 
The distribution is approximately symmetric.
b. If the right line is larger than the left line, 
The distribution is positively skewed.
c. If the left line is larger than the right line, 
The distribution is negatively skewed.
54-From the box plot below which class is more variable:

A) Both class are the same
B) Class A is more variable than class B
C) Class B is more variable than class A
D) Cannot be determined
55--Which is **not** part a five-number summary?

A. The mean  
B. The median  
C. The smallest and the largest data values  
D. \( Q_1 \) and \( Q_3 \)

56-Use the following boxplot graph to answer the following questions

1-IQR is approximately:

A. 60  
B. 0  
C. 80  
D. 30
2- The distribution shape is:
   A. Negative skewed
   B. Symmetrical
   C. Left skewed
   D. Positive skewed

3- The minimum value is
   A. 30
   B. 10
   C. 90
   D. 40

Use the following Boxplot to answer the following three questions:

![Boxplot Image]

- The value of the IQR is ...
  A) 35  B) 25  C) 40  D) 10

- The range of the raw data for the above Boxplot is ...
  A) 25  B) 40  C) 10  D) 35

- The shape of the distribution is ...
  A) bimodal.  B) symmetric.  C) left skewed.  D) right skewed.
Suppose that you have the following data values 6, 5, 4, 7, 8, 4, 1, 2, -1.

1. The value of the mean is ...
   A) 4.11   B) 8   C) 4   D) 4.5

2. The value of the standard deviation is ...
   A) 4.44   B) 2.91   C) 8.50   D) 72.25

3. From the values of the mean, median and mode, we can say that the distribution is ...
   A) right skewed.   B) left skewed.   C) symmetrical.   D) positively skewed.

4. The value of the midrange is ...
   A) 7   B) 4.5   C) 2.5   D) 3.5

5. The value of the IQR is ...
   A) 5   B) 8   C) 6   D) 3
The following data set displays the number of children for 7 families:
3, 5, 4, 6, 2, 49, 1

The mean value for the number of children is ...
A) 35  B) 70  C) 7  D) 10

The value of the standard deviation for the number of children ...
A)  B) 298.67  C) 17.28  D)

The most appropriate measure of average for the above data is the ...
A) mode  B) mean  C) midrange  D) median