# Statistics: Five-Number Summary & Box Plots (Grade 10)

## EXAM-STYLE CLASS TEST

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 35 | 55 minutes | 3 |

Name: ..... Class: .....

Date: .....

MARK ____ / 35

### INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

## QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

**1.1** The MEAN of 4 ; 7 ; 9 ; 11 ; 14 is ... (1)

**A)** 9 **B)** 10
**C)** 11,25 **D)** 45

**1.2** The MEDIAN of 3 ; 8 ; 5 ; 12 ; 7 is ... (1)

**A)** 5 **B)** 7,5
**C)** 12 **D)** 7

**1.3** The MODE of 2 ; 3 ; 3 ; 5 ; 7 ; 7 ; 7 ; 9 is ... (1)

**A)** 3 **B)** 5
**C)** 7 **D)** 5,375

**1.4** For 2 ; 5 ; 6 ; 9 ; 11 ; 14 ; 18 ; 20, the lower quartile $Q_1$ is ... (1)

**A)** 5 **B)** 5,5
**C)** 6 **D)** 10

**1.5** For that same data set, the INTERQUARTILE RANGE is ... (1)

**A)** 18 **B)** 5,5
**C)** 16 **D)** 10,5

**1.6** A five-number summary consists of ... (1)

**A)** mean, median, mode, range, IQR **B)** minimum, $Q_1$, median, $Q_3$, maximum
**C)** the five largest values in the set **D)** minimum, mean, median, mode, maximum

**1.7** On a box-and-whisker plot, the length of the BOX shows ... (1)

**A)** the interquartile range **B)** the range

**C)** the median **D)** the mean

**1.8** For a data set with $Q_1 = 14$, $Q_2 = 21$ and $Q_3 = 32$, the interquartile range is ... (1)

**A)** 7 **B)** 11

**C)** 18 **D)** 21

**1.9** Salaries are R8 000 ; R9 000 ; R9 500 ; R10 000 ; R120 000. The better measure of the centre is ... (1)

**A)** the range, because it shows the spread **B)** the median, because R120 000 is an outlier

**C)** the mean, because it uses every value **D)** the mode, because it is the most common value

**1.10** Adding one more value, equal to the mean, leaves the mean ... (1)

**A)** impossible to determine **B)** larger

**C)** unchanged **D)** smaller

**ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1**

| | | | | |
|---|---|---|---|---|
| **1.1** | A | B | C | D |
| **1.2** | A | B | C | D |
| **1.3** | A | B | C | D |
| **1.4** | A | B | C | D |
| **1.5** | A | B | C | D |
| **1.6** | A | B | C | D |
| **1.7** | A | B | C | D |
| **1.8** | A | B | C | D |
| **1.9** | A | B | C | D |
| **1.10** | A | B | C | D |

## QUESTION 2 [13 MARKS]

Thirteen people were asked how many kilometres they drive in a day. The results are given below.

**5 10 10 12 15 20 22 35 35 40 60 90 105**

**2.1** Calculate the mean of the data, correct to TWO decimal places. (3)

**2.2** Write down the five-number summary for the data. **(4)**

**2.3** Calculate the interquartile range, and explain what it measures that the RANGE does not. **(3)**

**2.4** The mean is much larger than the median. State which of the two better describes a typical value here, and give TWO reasons. **(3)**

## QUESTION 3 [12 MARKS]

The Mathematics marks of $50$ Grade $10$ learners were recorded.

| Marks | $0 \leq x < 10$ | $10 \leq x < 20$ | $20 \leq x < 30$ | $30 \leq x < 40$ | $40 \leq x < 50$ |
|---|---|---|---|---|---|
| Frequency | 4 | 8 | 15 | 14 | 9 |

**3.1** Write down the midpoint of each interval, and explain why the midpoints have to be used instead of the actual marks. **(3)**

**3.2** Calculate the ESTIMATED mean of the data. **(4)**

**3.3** Write down the modal interval, and determine the interval in which the median lies. **(3)**

**3.4** Explain why the mean calculated above is only an ESTIMATE. **(2)**

**TOTAL: 35 marks**

*This question paper consists of 3 questions.*

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